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ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of the City

DURING THE YEAR

1918.

Printed in the Office of the Newcastle-upon-Tyne Education Committee.

City and County of Newcastle upon Tyne.

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SANITARY COMMITTEE.

Councillor C. T. Stableforth, J.P., Chairman.
,, David Adams, J.P., Vice-Chairman.
The Lord Mayor (Councillor Sir George Lunn, J.P.).
Alderman Sir Joseph Baxter Ellis, J.P. (deceased).
,, Adam Wilson, J.P., L.R.C.P.
,, C. C. Elliott (deceased).
,, Robert Flowers.
,, G. G. Archibald.
,, W. J. Sanderson, J.P.
,, J. R. Mason, L.R.C.P.
Councillor Walter Lee, J.P.
,, Thos. Matthewson.
,, W. E. Harker.
,, Wm. Beckett.
,, Alex. Wilkie M.P., J.P.
,, Jas. Smith.
,, John Grantham.
,, J. W. Telford.
Councillor T. W. Bourn (deceased)
,, W. O. Weddle.
,, Thos. Cruddis.
,, John Chapman.
,, Adam Tindall.
,, Jno. Barker.
,, Geo. Dixon.
,, J. G. Smith
Councillor H. Benson.

TABLE SHEWING THE VARIOUS SECTIONS OF THE SANITARY COMMITTEE'S WORK WHICH IS UNDER THE DIRECT CHARGE OF THE MEDICAL OFFICER OF HEALTH.

- **Medical Officer of Health.**
  - **Health Department** (with 8 Clerks).
    - **Assistant Medical Officer of Health.**
      - **Infant Mortality** (SUPT. OF MIDWIVES and 11 Health Visitors and 2 Clerks).
      - **Infectious Diseases**
        - Executive (4 Inspectors and 6 Ambulance and Disinfecting Staff).
        - Bacteriological Examinations (College of Medicine).
    - **Veterinary Officer** and 2 Assistants and 1 Clerk.
    - **Inspector of Nuisances.**
      - **Insanitary Property and Nuisances** (9 District Inspectors).
      - **Common Lodging Houses** (2 Inspectors).
      - **Factories and Workshops** (2 Inspectors).
      - **Food and Drugs** (1 Inspector) for City Analyst and Bacteriologist.
  - **Tuberculosis Dispensary (Tuberculosis Medical Officer** with 4 Visiting Nurses, 2 Clerks, etc.).
    - **Sanatorium Beds for Adults** (Barrasford).
    - **Sanatorium Beds for Children** (Stannington).
    - **Sanatorium for Advanced Cases** (City Hospital).
  - **City Hospitals (Resident Medical Officer** and Assistant, Nursing and Domestic Staffs).
    - City Hospital, Walker Gate.
    - Smallpox and Isolation Hospitals, Town Moor.
  - **Control of Venereal Diseases.**
    - **Education and Publicity.**
    - **Diagnosis** (College of Medicine).
    - **Treatment** (Royal Victoria Infirmary).

STAFF.

HAROLD KERR, M.D , D P.H., Medical Officer of Health and Medical Superintendent of the City Hospitals for Infectious Diseases.

S. J. Clegg, M.D., D.P.H. (Deputy Medical Officer of Health and Resident Medical Officer, City Hospitals for Infectious Diseases).

Wm. Hudspeth, Inspector of Nuisances, and Chief Sanitary Inspector.

Chris. Raimes, Chief Assistant Inspector of Nuisances and Assistant Workshops Inspector.

Wm. Catliff, Assistant Inspector under the Food and Drugs Acts.

Isaac Clark, Assistant Workshops Inspector.

E. W. Scott, Jas. McNicholl, Jas. Hunter, Geo. Hardie, W. F. Bacon, Jas. McKendry, Richard Redpath, Adam Flockhart, L. W. Johnson, District Inspectors.

Arthur Rowe, Thomas Heslop, Assistant Inspectors of Common Lodging Houses.

Wm. Bean, Wm. Gray, W. E. Perkins, C. R. Craig, Infectious Disease Inspectors.

Jas. Robson, Jas. Bruce, Jno. R. Cragie, J. W. Robson, T. W. Whelans, Thos. Moore, Chas. Garraway, Ambulance Drivers and Disinfectors.

Wm. Gillender, Wm. Milne, *Geo. Cuthbertson, *Alfd. Hedley, *Alec. M. Walker, Jos. Gilhespy, Wm. Cockburn, Jno. Mullen, Clerks in the Health Department.

(Those marked * hold the Sanitary Inspectors Certificate of the Royal Sanitary Institute).

Thos. Parker, F.R.C.V.S., Veterinary Officer and Inspector of Provisions.

Thos. Dodds, Jas. M. Anderson, Assistant Inspectors of Provisions.

Norman Dickson, Clerk.

a Georgina B. Cameron, Chief Health Visitor and Supt. of Midwives.

b Dorothy Strong, **c** Catherine M. Thexton, **d** Mary Levine, **e** Agnes Speak, **f** Marian Moody, **e** Lizzie Isa Pritchard, **d** Louise Shell, **g** Maicie L. Hopper, **g** Florance Martha Hatfield, **e** Jeanie Gonzalez, Health Visitors ; Edith Rodgers, Clerk.

(Qualifications of those marked **a** C.M.B., General and Fever Nursing and R.S.I. Certificates **f** C.M.B., General Nursing and R.S.I. **c** C,M.B., General Nursing and Fever **d** C.M.B. and R,S.I. **g** C.M.B. and General Nursing. **e** C.M.B. **b** R.S.I.).

Wm. H. Dickinson, M.B., CH.B., D.P.H., Tuberculosis Medical Officer.

(**a**) Margaret L. Hutchinson, (**b**) Olive Simpson, (**c**) Constance M. Bayne, (**d**) Annie Booth, Tuberculosis Visiting Nurses.

(Qualifications of those marked **a** General Nursing. **b** General and Fever Nursing. **c** Health Visitors and School Nurses Certificates of R.S.I. **d** Fever Nursing).

Ralph T. Morrison, Assistant Inspector for Tuberculosis.

George Magnay and Mary Mullen, Clerks for Tuberculosis.

L. L. Fyfe, M.B., CH.B., D.P.H., Resident Medical Assistant, City Hospitals for Infectious Diseases.

W. S. Murray, M.B., B.S., Resident Medical Assistant, City Hospital.

H. E. Cook, Matron, City Hospitals for Infectious Diseases.

Sisters, Nurses, Servants.

Helena N. Harrington, Dispenser.

Jas. Cockburn, Engineer.

Herbert Blacktin, Lodge Keeper, City Hospital, Walker Gate.

Firemen ; Window Cleaner.

Jos. W. and Jane Stephenson, Jas. and Mary Gregan, Caretakers at Smallpox and Isolation Hospitals.

Of the foregoing the following have served with the Colours :—

SERVED WITH THE COLOURS.

S. J. Clegg, Major, R.A.M.C., D.A.D.M.S., and Specialist Sanitary Officer, 3rd Corps, France. Service, November, 1914, to December, 1918. Awarded O.B.E. (Military Division), and the Médaille des Epidemies (en argent).

L. L. Fyfe, Captain, R.A.M.C. Served at Dardanelles (wounded), and Salonica. Served May, 1915, to March, 1919.

James Hunter, Reg.-Qr.-Master Sergt., 50th Sanitary Section, France. Service, March, 1915, to May, 1919.

Richard Redpath, Corpl., Army Pay Corps, previously Quartermaster, Red Cross, France. Joined November, 1914, and still serving.

Adam Flockhart, Reg.-Sergt.-Major, 450th (Northumbrian) Field Coy., Royal Engineers, Mesopotamia. Service, August, 1914, to May, 1919.

W. E. Perkins, Sergt., R.A.M.C., France. Service, March, 1915, to March, 1919. 29th Sanitary Squad.

Wm. Gray, Sergt., R.A.M.C. 23rd Sanitary Section, France. Joined Dec., 1914, and still serving.

Arthur Rowe, 2nd Lieut., Pioneer Battalion, Northumberland Fusiliers. Wounded. Awarded a commission in France. Joined October, 1914 ; still serving.

Thos. Heslop, Air Mechanic, 2nd Class, R.N.A.S., France. Service, Nov., 1916, to February, 1919.

Alfred Hedley, Sergt, R.A.M.C., 50th Sanitary Section, France. Awarded M.S.M. Served November, 1914, to June, 1919.

A. M. Walker, Private, R.A.M.C., 67th Division, Sanitary Section. Joined, November, 1915. Invalided out August, 1916.

Jos. Gilhespy, Private, 18th Battalion, Northumberland Fusiliers (Pioneers), France. Joined June, 1915, demobilised February, 1919.

Wm. Cockburn, Private, Machine Gun Corps, France. Service, April, 1917, to February, 1919.

Jas. Bruce, Private, 3rd Battalion Northumberland Fusiliers, France. Service, March, 1917, to February, 1919.

Jno. Cragie, Private, Army Vet. Corps, France. Joined, November, 1916, and still serving.

Frank Harrington, Private, 1st Battalion Coldstream Guards, France. Service, August, 1915, to January, 1919. Reservist, time-expired, before war.

T. M. Whelans, Driver, 200th Machine Gun Company, France. Service, November, 1915, to March, 1919.

J. W. Robson, Private, A.S.C., Remount Depot, France. Joined July, 1916, and still serving.

Thos. Moore, Private, R.A.M.C. Service, October, 1916, to February, 1919,

Chas. Garraway, Private, R.A.M.C. Service, June, 1917, to March, 1919.

On Munition Work— L. W. Johnson, Oct, 1916, to Nov. 1918.

TEMPORARY STAFF, ineligible by age, or otherwise, for military service have been engaged :—

Temporary Inspectors—Alex. Kirton, T. S. Magnay, Jno. Liddle, J. D. Dixon, W. Herdman, and J. E. Cowan.

Temporary Ambulance and Disinfecting Staff—Jno. Taylor, H. Sanderson; J. Scott, C. Ellis and J. Thompson.

Temporary Clerks—Edith Looney, Winifred McMillan and Annie McLeod.

To Councillor Charles T. Stableforth, J.P.,
Chairman of the Sanitary Committee of
the Corporation of Newcastle-upon-Tyne.

SIR,

In presenting for your information my Report upon the Health of the City in 1918, I have to state that but for the almost phenomenally virulent epidemic of *Influenza* during the latter half of the year a record would probably have been achieved in lowness of mortality. From nearly every cause of death but this the fatalities were among the lowest yet experienced. It is satisfactory to note that the death rate from all causes was lower than that for the country as a whole, and for the average of the 96 great towns.

The *Influenza* pandemic was the outstanding feature of the year, and in 1918 alone accounted with *Pneumonia* for 1,037 deaths in Newcastle, as against 445 in 1917. Nevertheless, great as was the devastation wrought here, Newcastle suffered much less than most other towns, notably some quite near neighbours.

The incidence of all the other *infectious diseases* including summer diarrhœa, was lower than ever before. At the present rate of progress *enteric fever* will soon be included among the diseases formerly endemic, and now so rare as to be regarded as practically " stamped out."

The direct results of wear and tear, viz., the *diseases of the nervous system* and of the *circulatory system*, were still adding to their victims, deaths from the former being as numerous in 1918 as in 1917, and from the latter considerably more so. Deaths from *respiratory diseases* show a substantial increase, but this is probably ascribable to the influenza epidemic.

Deaths from *digestive diseases*, in spite of increasing food restrictions, or probably owing to the steady simplifying of available dietaries and their closer supervision, show a further decline upon the previous year, and totalled only about one half of the number in 1914.

Cancer claimed 27 fewer victims than in 1917, thus continuing the fall of the last six or eight years.

Consumption has caused fewer deaths ; the incidence, however, is still far too heavy, especially upon girls and young women. No solid amelioration can be looked for so long as the present unsatisfactory housing conditions continue.

Infantile mortality was low, the lowest experienced in any year but 1912, but it is still capable of considerable reduction.

The Registrar General estimates the **Population** at the middle of the year as 265,730, or 12,377 less than in 1915. As the local evidence—inhabited houses, occupants per house, etc.—is against any diminution in the population, for the purposes of this report the same figure as for 1915, viz., 278,107, has again been retained.

The number of **Marriages** in the City during the year was 2,544 as compared with 2,389 in 1917, 2,620 in 1916, and 3,264 in 1915.

The **Birth Rate** was 23.3 per 1,000 population, as against 23.4 in 1917 and 26.2 in 1916. This is the lowest yet reached. There were 27 fewer births in 1918 than in 1917.

The **Death Rate** (among civilians only) from all causes was 17.3 as compared with 15.0 per 1,000 population in 1917, and 15.9 in 1916. There was an increase of 734 deaths over 1917, but no count is taken of our losses in the army and navy, which must have been considerable.

The *Natural Increase* (births, minus deaths) only amounted, therefore to 1,652.

The **Infantile Mortality Rate** was equivalent to 107 deaths of infants under one year of age per 1,000 births, as compared with 113 in 1917, 123 in 1916, 133 in 1915, 137 in 1914, 122 in 1913, and 101 (the lowest recorded) in 1912. There were thus 40 fewer infantile deaths than in 1917.

Of the total number of infant deaths nearly two thirds were due to causes operating before birth. These are the influences that all our efforts have ceased to touch yet, although recent years have seen very great reductions in the losses from purely post-natal causes. It is encouraging, therefore, to see the interest and activity that is being displayed by the newly-created MATERNITY AND CHILD WELFARE COMMITTEE, and the enthusiasm with which it is promoting schemes for rendering the times of pregnancy, confinement and nursing safer and more comfortable for mothers and children.

Of the post-natal causes of death respiratory diseases, as usual, bulk largest, and account for about one-fifth of the total deaths among babies. Pneumonia, broncho-pneumonia, and bronchitis constitute the vast majority of these, but with the systematic visiting by trained health visitors of all measles cases (so commonly complicated by chest trouble) and of notified cases of primary and post-influenzal pneumonia, a considerable saving of life may be confidently counted upon, such as has undoubtedly resulted already in the case of measles.

Close working has been continued with the MOTHERS' AND BABIES' WELCOME SOCIETY, with its seven centres, and the EAST END AND WEST END DAY NURSERIES. The former has been working under grave disadvantage through shortage of medical staff, and owes much to the untiring and by no means unsuccessful efforts of the sole remaining medical officer, Dr. Mabel Campbell, to keep all centres going throughout the war years.

There can be no doubt that the steadily increasing home supervision exercised by the CHIEF HEALTH VISITOR AND SUPERINTENDENT OF MIDWIVES (Miss G. B. Cameron), and her staff of eleven Health Visitors is having its effect upon the welfare of the babies, despite the bad home conditions, up to the present unremediable, of so many of them, and the regular progress that is shown each year is proof of the value of the work done.

The milk-distributing side of the department is becoming of great importance, and during 1918 about 24 tons of dried milk were distributed, of which 3 tons were given free. Latterly about 1 ton a week was passing through the Department. The low incidence of digestive disease and diarrhœa, in spite of the fine warm summer, and the unfavourable sanitary conditions in many districts, is due partially at least to the use of the relatively pure and uncontaminated and readily digestible dried milk.

The future of Maternity and Child Welfare is most hopeful and promising, and the developments that have already taken place since the close of the year under report are excellent evidence of the awakening of the national conscience to a sense of past neglect, and are encouraging indeed.

Infectious Diseases, with the exception of Influenza, were less prevalent than in any previous year on record, and of mild type. **Measles and Rubella** were certified in 1,660 cases, among whom there were 33 deaths, equal to a death rate of 0.12 per 1,000 population. Almost all the cases were visited, as soon as notified, by the Health Visitors, to ensure that they were receiving proper care and attention, and to seek out unattended cases. This home supervision may or may not have the desired effect of limiting the spread of the disease by checking carelessness, indifference, or downright neglect, but the mortality from avoidable complications has certainly fallen notably since it was commenced.

There were only 426 cases of **Scarlet Fever,** with eleven deaths, and **Diphtheria** remained well below the average of recent years, with 250 cases and 23 deaths. **Whooping Cough** caused 119 deaths, an increase of 59 over 1917. **Infantile Diarrhœa** caused 83 deaths in children under two years, a decrease of 31 on last year's figures, which were substantially less than in the two preceding years.

There were only 29 cases of **Enteric Fever,** with two deaths, a record of which we can be really proud. The steady disappearance of this disease, which is a true measure of sanitary progress, should become complete once it is possible to recommence and carry through the conversion of the five thousand dry closets that still remain within the City. Five of the cases were military or naval, all the men in the services, with few exceptions, being protected by inoculation.

There was no occurrence of anything suggestive of **Food-Poisoning.**

Typhus made no appearance in the City in 1918.

Smallpox also remained absent. Attention, however, must be directed once again to the ever-growing neglect of infantile *Vaccination.* Since 1908 there has been a steady diminution in the proportion of babies vaccinated. In Newcastle that is less noticeable than in most other places, but in 1918 only 78 per cent. obtained protection, though this is far in excess of the proportion in neighbouring areas. Sporadic cases of smallpox have been occurring all over the country during recent months—a usual aftermath of war—and contacts are occasionally traced to Newcastle, so that the danger of an outbreak is unpleasantly real.

There were no cases of **Acute Poliomyelitis** notified, and there were 16 cases of **Cerebro-Spinal Fever,** with 6 deaths.

Influenza appeared in Newcastle in widespread epidemic form in three distinct waves, the first in June, July, and August, of comparatively mild type, and affecting chiefly the younger ages of the population. In this wave there were 264 deaths from influenza or pneumonia, and 19.7 per cent. of these were in children under five years of age, and 27.2 per cent. were between the ages of 25 and 45.

The second wave occurred in October, November, and December, with 773 deaths, and was of much severer type, with a far greater proneness to pulmonary complication. 19.8 per cent. of the deaths occurred among children under 5 years, and 31.7 per cent. in persons of between 25 and 45. During this wave some quite appalling weekly general death rates were recorded all over the country, the highest noted being equivalent to an annual rate of 100.2 per 1,000 of population, while even in the north-eastern counties rates exceeding 90 per 1,000 were reached. In the week ending Nov. 30 occurred the heaviest mortality, till then, of modern times in Newcastle, with a death rate equal to 42.4 deaths per 1,000 population per annum.

The third wave followed immediately on the second, in January, February, and March, 1919, and was also characterised by a severe type, with much pneumonia. There were 924 deaths, of which 34.5 per cent. were of children under 5 years, while 25.2 per cent. were of persons aged between 25 and 45. It was in the week ending February 27, 1919, that all previous gloomy records in Newcastle were outclassed, with a general death rate equal to an annual one of 67.9 deaths per 1,000 population.

From special investigations it would appear that about 22 per cent. of the population suffered from the disease in one or other of the three waves, that the successive waves developed higher infectivity, and that an attack conferred a certain degree of immunity lasting about six months. Prophylactic inoculation, though provided and offered free, was not sufficiently tested here to permit of reliable deductions as to its value. Infection was very general in its distribution, and apparently without relation to overcrowding.

The measures adopted to prevent spread included prompt closure of schools and Sunday schools and continuance throughout the epidemic, which appeared to exert a definite effect in reducing the incidence of the disease upon school children ; exclusion of children, and (by the military and naval authorities) of soldiers and sailors from cinemas and places of public entertainment, together with strong discouragement generally of resort to such places, and any other indoor functions where close contact is inevitable or likely ; attention to the ventilation of public buildings and vehicles, and their thorough cleanliness ; enforcement of the half-hour closure regulations in cinemas ordinarily run continuously ; organisation of a volunteer service of home nursing and home help ; hospital treatment of severe cases at Walker Gate ; advocacy of use of masks by attendants on the sick ; disinfection of bedding and soiled handkerchiefs, etc., after recovery or death from pneumonia ; organisation of assistance to undertakers and grave diggers to prevent delay in interment of the dead ; constant public instruction through the press, by cinema film, by lectures, and by nurses and health visitors in the homes.

All this was put in hand at the first sign of commencement of the second wave, which reached Newcastle rather later than most other towns. Whether all the effort expended had any effect or not it is impossible to say with certainty, but the fact remains that Newcastle suffered less severely than almost any other town in the country. In spite of that, however, there were from first to last almost 2,000 deaths, truly the most terrible visitation in the memory of the present generation.

Hospitals for Infectious Diseases.—1,245 fever patients, together with 207 cases of pulmonary consumption, were isolated at the *City Hospital, Walker Gate*. The former figure includes a number of cases of various diseases from military camps and billets over the greater part of the two north-eastern counties. In all, 319 naval and military patients were received. The fever case mortality for the Hospital was 4.26 per cent.

The *Smallpox Hospital* was in use from June 29th to November 15th for the segregation of 164 persons, of whom 160 were refugees—Belgian, French, Italian, Spanish, Polish, Serbian, Czech, Alsacian, and Russian, —from Russia, via Murmansk. These arrived in two ships, from one of which were taken 149, and from the other 11 persons, suffering from a variety of infectious diseases, or contacts with them, including 7 cases of smallpox.

In addition to these there were sent from the first ship, for disinfection and rapid clearance, 57 first-class passengers of British and allied nationalities, mostly high political or military officials on urgent business connected with the war. These were all cleared within about 48 hours.

The *Disinfecting Stations* at Walker Gate and on the Moor dealt with 42,767 articles from the City, from military units within a wide radius of Newcastle, and from the Hospitals themselves.

The **Tuberculosis** scheme has been kept going in spite of the continued shortage of the medical staff. Although home-visiting of patients was practically entirely relegated to the nurses, the TUBERCULOSIS MEDICAL OFFICER (Dr. W. H. Dickinson) reports a steady increase in the number of consultations with him at the Dispensary, viz., 11,517 as against 9,286 in 1917, and 7,758 in 1916.

There were 819 new cases notified as compared with 909 in 1917, and 987 in 1916, 964 in 1915, and there were 531 deaths as compared with 571 and 557 in the two preceding years.

Twenty-five per cent. of these cases were first discovered by the Tuberculosis Medical Officer among the home " contacts " of known patients.

There were 904 cases on the Dispensary Register and of these 377 were insured persons, 423 were dependents of insured persons, and 104 were uninsured.

There is still an inordinately heavy incidence of the disease upon women aged 15 to 35, since 1916, when they first began to flock in numbers into factories and other employments where previously few went out to work.

It is to be regretted that very many cases come for treatment too late for any hope of cure ; 31.5 per cent. died within three months of the notification being received from the private doctor, while 18.5 per cent. had never been notified at all. It is much to be desired that with the return of more doctors to civil employment this unfavourable feature will obtain the attention it requires.

In November it was decided to increase the thirty beds at *Barrasford Sanatorium* for early cases of pulmonary tuberculosis in adults to 45, and all the beds held by the Committee, both there and at *Stannington Sanatorium* for children (30 beds) were kept fully occupied. Of 715 patients treated in Corporation beds at Barrasford since the commencement of contract in 1908, at the end of 1917 there were 30 still in the institution, 231 well, working, or fit to work, 80 improved or moderately well, 23 relapsed, 284 dead, and 97 lost sight of. Of 49 Corporation patients who left Stannington in 1918, 43 were much improved, 3 improved, and 3 showed no improvement. 191 advanced cases were discharged from the *Sanatorium Pavilions, Walker Gate,* and 33 of these were fit for work, 72 were improved, 46 were without improvement, and 40 died in hospital. The great value of this institution lies in the prevention of the infection of other members of a household where the home conditions are not such as to permit of sufficient precautions being taken.

The second year of work of the scheme for diagnosis and treatment of **Venereal Disease** has been one of development and progress. 944 persons from Newcastle attended 8,364 times at the out-patient Clinic, and occupied beds in the wards for 1,045 days, and an irrigation station for each sex was constructed.

Public education and propaganda have continued quietly ; seven lectures and a number of addresses were given to various women's organisations, and much instructive literature has been distributed. Brieux's " Damaged Goods " was again played for a week at the Theatre Royal, where it was well received. Propaganda were interrupted somewhat by the armistice and the consequent disorganisation and demobilisation in the factories.

The Policewomen, of whom there are now four, and the women of the Volunteer Patrol Service, have rendered an excellent social service to the City.

Lt.-Col. R. A. Bolam, chief Specialist and Medical Officer at the Clinic, reports difficulty in inducing all cases to continue their course of treatment until a cure is obtained, and it is doubtful whether better attendance will be obtained, in spite of much " following up," without some measure of compulsion, accompanied by a system of modified notification.

Private practitioners continue to take advantage of the opportunities for study and practical experience afforded at the Clinic.

Food and Provisions.—**Bovine Tuberculosis.**—103 samples of milk were examined for the presence of tubercle bacilli, which were found in 3, or 2.9 per cent. of them. This proportion is extraordinarily low, and is accountable for, perhaps, by earlier fattening off and killing of dairy cows.

The disease-infected samples were from Ayrshire, Dumfriesshire, and Cumberland, the first being from a creamery, and involving the examination of 788 cows on 34 farms. 13 cows, clinically detected as tuberculous, were found in all, and were removed from the herds. Subsequent check samples from the milk of the respective herds were all tubercle free.

The Veterinary Officer and Inspector of Provisions (Mr. Thomas Parker, F.R.C.V.S.), reports that within the boundaries of the City are 29 cow-keepers, occupying 43 cow-sheds, on 31 premises, with 622 milch cows. It has not been possible during the past year to give these the degree of attention they should have, owing to the multifarious duties of the small staff.

Control of the sales, movement, and slaughter of live stock, together with the sadly diminished supply, has made possible rather more thorough supervision and inspection of meat than previously. The lack of a public abattoir has never been more keenly felt however, for while many of the killing shops have been temporarily shut up, the very scattered remnant, including that selected as the " government slaughter house," have been often grossly overcrowded, and their proper oversight is still most difficult. In one way the City has suffered, for prior to control the local Butchers' Association did not insure cows, with the result that few were killed in Newcastle but went elsewhere. Now, however, the full quota come to our market, with the result that in 1918 223 carcases, including 142 of cows, or almost twice as many as in 1917, were condemned totally or in part on account of tuberculosis.

There are still 106 slaughter-houses scattered about the City, including one knackers' yard and two establishments in which horses are slaughtered for human food. A large proportion of these are exceedingly bad and unsuitable, and though many are temporarily disused, doubtless on the abolition of Government control they will come into use again. It is greatly to be desired that a single central public abattoir be established with as little further delay as may be.

Other Unsound Food. — 224½ animal carcases, in addition to the above, were condemned as being unfit for human consumption. There were also condemned 8 tons, 3 qrs., 21 lbs. of other meat. This is a very substantial increase over the quantities condemned in the previous year, and more than double the amount condemned in 1914, the last normal year.

16 vessels from Denmark brought consignments of beef and bacon to Newcastle Quayside, as compared with 95 in 1917, 492 in 1916, and about 300 in pre-war years. The cargoes were inspected carefully and such portions as proved to be unsound were seized and destroyed, or ordered to be re-exported.

The Veterinary Officer continued to render considerable assistance to the military authorities in the inspection of their food supplies, as well as to the Ministry of Food.

There were three successful prosecutions against persons selling or exposing for sale unsound meat, and one unsuccessful.

Special attention is directed to this section of the Report, in which Mr. Parker describes in interesting detail the methods adopted for the control of a most important class of food, and the salving and utilisation of damaged or diseased materials during a highly critical period.

Food and Drugs Adulteration Acts.—The INSPECTOR UNDER THE FOOD AND DRUGS ACTS (Mr. Wm. Hudspeth) reports the taking of 1,161 samples for analysis, including 970 of milk, Of the latter 521 were rough-tested in the Health Department, and appeared to be genuine, and of the remaining 449 the Public Analyst found 83 to be below the minimal limits fixed by the Sale of Milk Regulations, 1901, while one contained annatto, used as a colouring matter.

Of the 191 samples of food and drugs other than milk, 7 were found to be not genuine.

36 cases were taken to Court, and a conviction was obtained in 22 of them, with fines aggregating £54, cautions were issued in respect of 27 ; and no proceedings were taken, for various reasons, in 28.

There were 7 offences other than adulteration, the offenders being summoned and convicted in each case. The penalties in these instances totalled £11 10s.

The samples taken under the Food and Drugs Acts represented a proportion of 4.17 per 1,000 population in addition to 103 samples of milk for examination by the bacteriologist for presence of tubercle bacilli (previously mentioned), and 196 for evidence of excremental pollution, which was found to an undesirable degree in 131 (or 66.8 per cent.). In 153 samples of water examined for evidence of excremental pollution, 10 were classified by the Bacteriologist as satisfactory, 45 as doubtful, 64 as unsatisfactory, and 34 as bad.

In 1914 10.2 per cent. of the **Milk** samples were certified " not genuine," in 1915 9.3 per cent., in 1916 10.3 per cent., and in 1917 11.0 per cent., in 1918 8.66 per cent. Tubercle bacilli were found in 6.7 per cent. in 1914, 5.8 per cent. in 1915, 8.7 per cent. in 1916, 3.1 per cent. in 1917, and 2.9 per cent. in 1918.

Evidence of excessive excremental pollution was found in 23.2 per cent. in 1914, 35.0 per cent. in 1915, 41.5 per cent. in 1916, 51.4 per cent. in 1917, and 66.8 per cent. in 1918, thus indicating a steady and alarming deterioration in the precautions for safeguarding the cleanliness of the milk, by careful methods at the farms and skilful handling in transit and delivery.

There were 480 small general shops selling milk, and the unsuitabliity of these for the purpose constitutes a grave risk to the consumers, who are mainly children. It is satisfactory to report that a considerable number of these have since been eliminated, and the remainder are under consideration.

The margarine warehouses, bakehouses, restaurant kitchens, fried fish shops, and ice-creameries were kept under supervision, and their cleanliness and cleansing insisted upon.

During the period covered by this Report much valuable assistance has been rendered by the Local Food Control Committee's intelligent administration of the various Orders under the Defence of the Realm Act, in referring to the Medical Officer of Health all applicants for licence as manufacturers of or dealers in food for a certificate of suitability before granting the necessary permit. It is to be hoped that the powers of Local Authorities will be strengthened in this direction before the repeal of the Act.

Much direct work on behalf of the Local Food Control Committee has been undertaken by the staff of the Health Department.

The House and the Workplace.—Nuisance Abatement.—The INSPECTOR OF NUISANCES (Mr. William Hudspeth) reports extreme difficulty in getting improvements carried out and defects remedied, owing to the shortage of labour and materials. The systematic house-to-house inspection under the Housing and Town Planning etc., Act, has been discontinued since early in 1915, because of the impossibility of getting all the vast number of minor defects so discovered attended to. Nevertheless, 7,690 notices were served, and magisterial proceedings were only necessary in one instance.

The cleansing and scavenging services (under the City Engineer) have been carried on with considerable efficiency, and at any rate the health of the community has not suffered to any perceptible extent through the disabilities and difficulties under which the work has been performed.

If householders could only be persuaded to burn all their combustible domestic refuse, the difficulty of disposal would be greatly lessened.

Closet conversions have ceased entirely ; in pre-war years the dry closets were being got rid of annually at the rate of about 700. Almost one-tenth (5,337) of the closets of the City are still on the conservancy system, mostly in the Byker and Walker districts.

Atmospheric Pollution, as measured at the observation station near the Sallyport Tower in City Road, amounted to a deposit, in that part of the town, at the rate of 15 cwt. of solid impurities per acre per annum, or 480 tons per square mile.

Housing, and the lack of it, continue to form the chief menace of all to the health of the people. No new houses have been built, and there were only 31 empty houses in the whole City at the end of the year.

According to the result of the special investigation undertaken in the latter part of 1917, there were then *needed at once* 3,130 new houses, viz., :

To relieve overcrowding in the Tenements -	500
To accommodate families at present sub-letting	2,300
To replace " black list " houses - - -	170
To replace cellar dwellings - - - -	160
to which must now be added the number of new houses necessary every year to meet the normal increase of population, - - - - -	375
Making the total - - - -	3,505

If the overcrowding was excessive a year ago it has become steadily worse since, and all the district inspectors report more and more sub-letting, a most injurious practice. Lack of houses restricts the marriage rate, leads to immorality or to marital unhappiness and artificial limitation of the birth rate, and is altogether bad for the national morale, and provocative of social unrest. As shown from the morbidity statistics each year the most densely overcrowded areas always suffer more severely from the ravages of disease than those that are less congested. In 1918 the general death rate (i.e., from all causes) was 25.4 deaths per 1,000 population in All Saints' Ward, while in Jesmond it was only 10.5 ; in All Saints' the death rate from tuberculosis was 3.53 per 1,000, in Jesmond 0.52 ; in St. John's the infantile mortality rate was equivalent to 170 deaths of babies under one year per 1,000 births (in All Saints' 135), and in Jesmond 51. Over a period of 11 years the deaths of infants per 1,000 births in one-room, two-room, and three-room houses have been respectively 148, 125, and 109.

Accommodation in the common lodging houses was ample, owing to so large a proportion of the normal population being in the army or navy. The lodging houses are as well kept as their structural condition will permit ; many are quite good, but those in the oldest part of the town—about lower Pilgrim Street and and Quayside chiefly, are situated in ruinous old tenements, which, though kept astonishingly clean under the constant inspection of the Health Department, are altogether unsuitable for the purpose.

Factories and Workshops, Offices and Schools.—2,829 inspections of factories and workshops have been made, and 234 notices to remedy defects were served. The homes of outworkers were also kept under observation.

Eleven samples of rag flock were purchased and submitted to the Public Analyst, one being found not to conform to the legal standard of cleanliness. The Committee was advised, however, that the case was not one for legal procedure.

219 inspections were made at Council Schools. In one instance certain minor defects and other insanitary conditions in connection with the conveniences, etc., were noted and reported to the school authorities, who had them remedied.

Collaboration with the Military Authorities.—The close co-operation and pleasant relations between the Health Department and the Military Authorities have continued thoughout the year.

The services rendered included routine inspection of billets and quarters, treatment of infectious disease (not limited to the City area), and disinfection ; supervision of food supplies, and the conditions of their manufacture and preparation ; and generally the facilitating of arrangements for the health and comfort of troops.

Billet inspection entailed 4,023 visits ; 319 cases of infectious disease (of whom 11 died) were treated at the City Hospital, Walker Gate ; and 14,964 articles were disinfected for various reasons.

Staff.—20 men, including three doctors, were absent on military service and one on special technical work, and two returned to duty just before the end of the year.

MAJOR S. J. CLEGG, R.A.M.C. (T.), who was Deputy Assistant Director of Medical Services, and Specialist Sanitary Officer, 3rd Corps, France, has been awarded the O.B.E. (Military Division), and SERGEANT ALFRED HEDLEY, 50th Sanitary Section, France, has obtained the Meritorious Service Medal. PRIVATE ARTHUR ROWE, Northumberland Fusiliers (Pioneers), after steady promotion through the non-commissioned grades, received a commission.

14 temporary substitutes, men and women, have been engaged. The chief shortage was felt in regard to the medical staff, for whom substitutes could not be found. Most fortunately the low rate of sickness that characterised the year has again greatly mitigated the effect of the extreme shortage of medical men, both in the municipal service and among the community generally.

Every member of the Staff has worked loyally to cope with the ever-increasing demands upon the Department, and it is no little satisfaction now to be able to look back over the past four-and-a-half years of anxiety and strain with the knowledge that all the essential functions of the Health Department were scrupulously " carried on " throughout. Many duties were new, and were imposed upon, or were voluntarily undertaken by a staff lacking a large proportion of its most able and experienced members, to meet special exigencies or requirements of the times ; and there is no reason to be ashamed of the results. I desire to acknowledge most gratefully the whole-hearted way in which my colleagues have been with me during a most difficult time.

What has been accomplished was only made possible by the confidence and support of yourself, Sir, and of the Sanitary Committee, and by the ready help and sympathy extended to us by you at all times.

I have the honour to be, Sir,

Your obedient servant,

H. Kerr

M.D., D.P.H.

Medical Officer of Health.

Health Department,
Town Hall,
Newcastle upon Tyne,
June, 1919.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

Health Report, 1918.

I.—GENERAL.

MORTALITY TABLES, SOCIAL CONDITIONS,
CLIMATOLOGY, WATER SUPPLY,
DISPOSAL OF REFUSE.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

POPULATION, BIRTH RATE, AND SPECIAL MORTALITY RATES DURING THE PERIOD OF THE NOTIFICATION OF INFECTIOUS DISEASES.

Year	Population	Birth Rate	General Death Rate	Infant Mortality (Deaths per 1,000 Births)	Zymotic Death Rate	Diarrhœa (All Ages)		Smallpox					Typhus		Enteric Fever					Diphtheria					Scarlet Fever					Erysipelas					Measles			Whooping Cough		Puerperal Septicæmia		Cancer		Tuberculosis: Phthisis					Tuberculosis: Other Forms					Tuberculosis: Total					Year
						Number of Deaths	Death Rate per 1,000 Population	Cases Notified	Number of Deaths	Case Mortality per cent.	Death Rate per 1,000 Population	Attack Rate per 1,000 Population	Cases Notified	Number of Deaths	Cases Notified	Number of Deaths	Case Mortality per cent.	Death Rate per 1,000 Population	Attack Rate per 1,000 Population	Cases Notified	Number of Deaths	Case Mortality per cent.	Death Rate per 1,000 Population	Attack Rate per 1,000 Population	Cases Notified	Number of Deaths	Case Mortality per cent.	Death Rate per 1,000 Population	Attack Rate per 1,000 Population	Cases Notified	Number of Deaths	Case Mortality per cent.	Death Rate per 1,000 Population	Attack Rate per 1,000 Population	Cases Notified	Number of Deaths	Death Rate per 1,000 Population	Number of Deaths	Death Rate per 1,000 Population	Number of Cases Notified	Number of Deaths	Number of Deaths	Death Rate per 1,000 Population	Cases Notified	Number of Deaths	Case Mortality per cent.	Death Rate per 1,000 Population	Attack Rate per 1,000 Population	Cases Notified	Number of Deaths	Case Mortality per cent.	Death Rate per 1,000 Population	Attack Rate per 1,000 Population	Cases Notified	Number of Deaths	Case Mortality per cent.	Death Rate per 1,000 Population	Attack Rate per 1,000 Population	
1883	153,756	35.6	24.7	168	4.1	105	0.68	493	60	12.2	0.39	3.2	96	24	216	42	19.4	0.27	1.41	29	11	37.9	0.07	0.19	1,152	124	10.8	0.81	7.5		?	..	?	..	..	209	1.36	51	0.33	7	1	?	?	..	?	..	?	..	..	?	..	?	..	..	?	..	?	..	1883
1884	157,567	38.5	22.5	156	3.2	164	1.04	174	12	7.0	0.07	1.1	17	6	260	47	18.1	0.30	1.65	76	16	21.0	0.10	0.48	2,167	156	7.2	0.99	13.7		10	..	0.06	..	..	15	0.09	85	0.54	16	9	73	0.46	..	329	..	2.08	..	..	176	..	1.12	..	..	505	..	3.20	..	1884
1885	161,526	36.2	24.7	174	4.3	113	0.70	70	3	4.3	0.02	0.43	9	7	253	56	22.1	0.35	1.58	93	26	28.0	0.16	0.57	1,227	83	6.8	0.51	7.6		16	..	0.10	..	..	359	2.22	49	0.30	11	4	64	0.40	..	368	..	2.28	..	..	138	..	0.86	..	..	506	..	3.13	..	1885
1886	165,585	36.9	20.7	156	2.4	147	0.89	5	..		..	0.03	1	..	205	34	16.6	0.21	1.27	73	19	26.0	0.11	0.44	1,004	45	4.5	0.27	6.1		12	..	0.07	..	..	42	0.25	102	0.62	14	11	81	0.49	..	362	..	2.18	..	..	155	..	0.94	..	..	517	..	3.12	..	1886
1887	169,745	36.1	23.3	174	3.1	115	0.68	7	..		..	0.04	37	4	325	42	12.9	0.25	1.92	90	31	34.4	0.18	0.53	1,208	38	3.1	0.22	7.1		19	..	0.11	..	..	211	1.24	71	0.42	10	4	77	0.45	..	341	..	2.01	..	..	167	..	0.98	..	..	[illegible]	..	3.0	..	1887
1888	174,012	34.5	18.7	138	1.3	66	0.38	..			..	..	4	1	122	23	18.9	0.13	0.70	97	33	34.0	0.19	0.56	749	24	3.2	0.14	4.3		5	..	0.03	..	..	10	0.06	64	0.37	5	3	115	0.66	..	348	..	2.00	..	..	136	..	0.78			484		2.78	..	1888
1889	178,385	34.2	22.6	175	2.8	198	1.11	..	..		..	..	7	2	136	19	14.0	0.11	0.76	96	30	31.2	0.17	0.54	601	30	5.0	0.17	3.4		13	..	0.07	..	..	94	0.53	129	0.72	2	2	73	0.41	..	387	..	2.18	..	..	[illegible]		1.20			601	..	3.38	..	1889
1890	182,866	36.0	23.4	169	1.9	157	0.86	4	..		..	0.02	17	3	198	35	17.7	0.19	1.08	181	44	24.3	0.24	0.99	613	26	4.2	0.14	3.3	Not Notifiable.	25	..	0.14	..	..	7	0.04	80	0.44	4	3	92	0.50	..	383	..	2.10	..	..	186		1.02			569	..	3.12	..	1890
1891	186,976	35.7	23.6	175	2.5	83	0.44	..	..			..	19	2	134	24	17.9	0.13	0.72	121	42	34.7	0.22	0.65	785	39	5.0	0.21	4.2		11	..	0.06	..	..	128	0.68	179	0.96	5	2	107	0.57	..	398	..	2.13			[illegible]	..	1.39	..		657	..	3.52	..	1891
1892	189,770	34.6	19.8	150	1.5	73	0.38	4	1	25.0	0.00	0.02	..	..	97	14	14.4	0.07	0.51	156	41	26.3	0.22	0.82	963	29	3.0	0.15	5.1		8	..	0.04	..	..	67	0.35	75	0.40	7	2	105	0.56	..	409	..	2.15	..		[illegible]		1.08	..		613	..	3.23	..	1892
1893	192,478	34.4	21.4	174	2.4	154	0.80	25	..	..	..	0.13	3	2	141	25	17.7	0.13	0.73	171	28	16.4	0.15	0.89	693	23	3.3	0.12	3.6		8	..	0.04	..	..	208	1.08	33	0.17	4	2	123	0.64	..	347	..	1.81			[illegible]	..	0.99			537	..	2.78	..	1893
1894	195,285	32.0	18.8	157	2.0	79	0.40	2	..	..	..	0.01	..	..	164	30	18.3	0.15	0.84	112	27	24.1	0.14	0.57	826	27	3.3	0.14	4.2		7	..	0.04	..	..	94	0.48	149	0.76	4	1	116	0.60	..	370		1.90	..		[illegible]	..	0.86			537		2.74	..	1894
1895	198,141	32.4	20.8	186	2.2	152	0.77	..	..	..	..	..	..	..	213	48	22.5	0.24	1.07	174	49	28.2	0.25	0.88	959	26	2.7	0.13	4.8		3	..	0.02	..	..	140	0.71	57	0.29	13	5	141	0.71	..	406	..	2.05	..		[illegible]	..	1.10			624	..	3.15	..	1895
1896	201,035	33.3	19.4	165	1.9	77	0.38	..	..	..	..	..	..	..	176	33	18.7	0.16	0.87	164	34	20.7	0.17	0.82	896	23	2.6	0.11	4.4		6	..	0.03	..	..	133	0.66	95	0.47	6	5	142	0.71	..	401	..	1.99	..	..	[illegible]	..	1.03			607	..	3.02	..	1896
1897	203,871	33.5	20.0	177	1.7	142	0.70	..	..		..	..	..	..	138	33	23.9	0.16	0.68	102	19	18.6	0.09	0.50	496	24	4.8	0.12	2.4		4	..	0.02		..	96	0.47	62	0.30	7	3	143	0.71	..	375	..	1.84	..		213		1.05			588		2.88	..	1897
1898	206,950	34.0	22.5	190	2.4	146	0.71	17	3	17.6	0.01	0.08	..	..	307	66	21.5	0.32	1.48	89	27	30.3	0.13	0.43	692	26	3.8	0.13	3.3		5	..	0.02	..	..	125	0.60	145	0.70	2	..	174	0.84	..	412	..	1.99	..	..	165	..	0.79			575		2.78	..	1898
1899	209,973	34.2	22.0	193	1.7	146	0.70	..	..	..	..	..	1	1	133	22	16.5	0.10	0.63	107	25	23.4	0.12	0.51	622	28	4.5	0.13	2.9		12	..	0.06	..	..	79	0.37	89	0.42	3	..	161	0.77	..	398	..	1.90	..	..	182	..	0.87		..	580	..	2.77	..	1899
1900	213,039	33.4	21.0	169	1.4	83	0.39	..	..		..	..	2	1	79	18	22.8	0.08	0.37	101	27	26.7	0.13	0.46	603	20	3.3	0.09	2.8	141	7	5.0	0.03	0.66	..	87	0.41	81	0.38	4	2	174	0.82	..	405	..	1.90	..	..	179	..	0.84	..	..	584	..	2.74	..	1900
1901	216,150	32.0	21.2	177	2.2	249	1.16	25	1	4.0	0.00	0.12	2	..	76	12	15.8	0.06	0.35	146	36	24.7	0.17	0.67	1,389	42	3.0	0.19	6.4	135	11	8.1	0.05	0.63	..	68	0.31	105	0.49	3	1	214	0.99	..	428	..	1.98	..	..	[illegible]	..	0.78	..		596	..	2.76	..	1901
1902	216,275	33.6	19.9	139	1.6	57	0.26	13	1	7.7	0.00	0.06	1	1	57	8	14.0	0.04	0.26	133	21	15.8	0.10	0.61	1,382	59	4.3	0.27	6.4	179	10	5.6	0.05	0.83	..	137	0.63	98	0.45	1	1	197	0.91	..	357	..	1.65	..	..	[illegible]	..	0.78	..		525	..	2.43	..	1902
1903	217,010	31.8	19.1	166	1.1	118	0.54	155	9	5.8	0.04	0.71	3	..	75	9	12.0	0.04	0.35	147	36	24.5	0.17	0.68	1,175	31	2.6	0.14	5.4	191	9	4.7	0.04	0.88	..	12	0.06	52	0.24	7	4	200	0.92	..	371	..	1.71	..		[illegible]	..	0.93	..		572		2.64	..	1903
1904	217,862	31.6	19.5	155	1.6	99	0.45	351	17	4.8	0.08	1.6	..	..	30	7	23.3	0.03	0.14	235	47	20.0	0.22	1.08	886	25	2.8	0.12	4.1	206	8	3.9	0.04	0.95	..	56	0.26	124	0.57	5	5	209	0.96	..	377	..	1.73	..		177	..	0.81			554	..	2.55	..	1904
1905	255,160	33.2	18.0	138	1.4	144	0.56	103	2	1.9	..	0.40	..	..	50	11	22.0	0.04	0.20	288	52	18.1	0.21	1.13	705	14	2.0	0.05	2.8	213	7	3.3	0.03	0.84	..	37	0.14	88	0.34	5	4	231	0.91	..	397	..	1.56	..		211	..	0.83			[illegible]		2.38	..	1905
1906	257,113	31.9	18.8	153	2.2	257	1.00	8	..	..	..	0.03	..	..	70	13	18.6	0.05	0.27	364	66	18.1	0.25	1.41	733	17	2.3	0.07	2.9	187	5	2.7	0.02	0.73	..	163	0.63	58	0.23	6	2	222	0.87	..	401	..	1.56			191		0.74			592		[illegible]	..	1906
1907	259,082	31.2	17.8	125	1.5	46	0.18	1	..	..	..	..	3	..	66	11	16.6	0.04	0.25	383	52	13.6	0.20	1.47	614	22	3.6	0.08	2.4	180	4	2.2	0.02	0.70	..	116	0.45	130	0.50	4	2	238	0.92	..	398	..	1.53			[illegible]		0.65			566		2.18	..	1907
1908	261,065	32.1	18.4	139	1.4	145	0.55	..	..			..	..	..	111	14	12.6	0.05	0.42	335	36	10.7	0.14	1.28	394	10	2.5	0.04	1.5	147	1	0.7	0.00	0.56	..	30	0.12	131	0.50	6	2	279	1.07	..	387	..	1.48			[illegible]		0.76			[illegible]		2.24	..	1908
1909	263,064	29.2	16.9	122	1.3	50	0.19	..	..		..	..	6	..	74	19	25.7	0.07	0.28	456	58	12.7	0.22	1.73	844	34	4.0	0.13	3.2	169	2	1.2	0.00	0.64	..	112	0.43	70	0.27	11	3	264	1.00	..	344	..	1.31			173		0.66			517		1.97	..	1909
1910	265,077	28.4	16.0	123	1.2	103	0.39	3	1	33.3	0.00	0.01	10	..	63	9	14.3	0.03	0.24	443	40	9.0	0.15	1.67	574	12	2.1	0.05	2.2	182	4	2.2	0.01	0.69	..	87	0.33	79	0.30	4	2	286	1.08	..	331	..	1.25			[illegible]	..	0.68			511		1.93	..	1910
1911	267,261	26.5	16.1	137	1.8	179	0.67	...	..	..	..	..	5	..	87	10	11.5	0.04	0.33	507	38	7.5	0.14	1.96	734	14	1.9	0.05	2.7	187	4	2.1	0.01	0.70	..	117	0.44	126	0.58	6	2	253	0.95	..	350	..	1.31			[illegible]	..	0.59	..	..	507	..	[illegible]	..	1911
1912	269,193	26.7	14.3	101	1.4	86	0.32	..	..		..	..	..	..	91	15	16.5	0.06	0.34	501	33	6.6	0.12	1.85	1,184	34	2.9	0.13	4.4	161	7	4.3	0.03	0.60	..	164	0.61	38	0.14	7	5	255	0.95	972	358	36.8	1.33	3.61	From 1st February, 1913	[illegible]	..	0.50	..	..	494	..	1.83	..	1912
1913	271,295	27.5	15.5	122	1.3	186	0.69	..	..		..	..	..	..	124	15	12.1	0.06	0.46	368	28	7.6	0.10	1.36	955	20	2.1	0.07	3.5	175	8	4.6	0.03	0.65	..	64	0.24	98	0.36	11	8	276	1.02	796	326	41.0	1.20	2.94	450	153	34.0	0.56	1.66	1246	479	38.4	1.76	4.6	1913
1914	271,523	27.8	17.2	137	2.3	302	1.11	..	..		..	..	2	1	102	21	20.6	0.08	0.38	362	28	7.7	0.10	1.33	1,723	44	2.6	0.16	6.4	250	7	2.8	0.03	0.92	..	212	0.78	77	0.28	16	2	265	0.98	665	375	56.4	1.38	2.45	293	[illegible]	52.6	0.57	1.08	958	529	55.2	1.95	3.5	1914
1915	278,107	†27.8	*17.2	133	1.9	214	0.77	..	..		..	..	1	..	100	12	12.0	0.04	0.36	275	26	9.5	0.09	0.99	1,416	40	2.8	0.14	5.0	169	5	3.0	0.02	0.60	..	215	0.77	75	0.27	21	8	270	0.97	612	380	62.0	1.37	2.20	352	[illegible]	46.0	0.58	1.27	964	542	56.2	1.95	3.5	1915
1916	278,107	26.2	*15.9	123	1.1	152	0.55	..	..		..	..	..	..	76	10	13.2	0.04	0.27	272	28	10.3	0.10	0.98	728	24	3.3	0.09	2.6	191	6	3.1	0.02	0.74	3,192	67	0.24	78	0.28	22	8	266	0.96	642	417	65.0	1.50	2.30	345	[illegible]	40.6	0.50	1.24	987	557	56.4	2.00	3.5	1916
1917	278,107	23.4	*15.0	113	1.1	148	0.53	..	..			..	..	..	25	2	8.0	0.00	0.09	226	33	14.6	0.12	0.82	452	19	4.2	0.07	1.6	118	5	4.2	0.02	0.42	4,561	78	0.28	60	0.22	5	..	252	0.90	590	411	66.3	1.48	2.12	319	[illegible]	50.2	0.58	1.15	909	571	62.8	2.05	3.3	1917
1918	278,107	23.3	*17.3	107	1.0	123	0.44	..	..		..	..	..	..	29	2	6.9	0.00	0.10	250	23	9.2	0.08	0.90	426	11	2.6	0.04	1.5	102	4	3.9	0.01	0.37	1,660	33	0.12	119	0.43	10	5	225	0.80	552	393	71.2	1.41	1.98	267	[illegible]	52.0	0.50	0.96	819	531	64.8	1.90	2.9	1918

Prior to [illegible] figures uncorrected for cases belonging to other Districts.

* Calculated on population for 1914

† Civilians only.

Under the heading of Measles, Rubella is included from 1916 onward.

GENERAL STATISTICS.

POPULATION.—As estimated by the Registrar General at the middle of the year 1915—(**Revised**) **278,107.**

Return Shewing the estimated Population of the different Wards in the City, Acreage, Population per Acre, etc.

Ward.	Population.	Gross Area in acres.	Less for Open Spaces, in acres.	Nett Area in acres.	Population per acre, gross.	Nett.
St. Nicholas' ..	3,656	127	1	126	29	29
St. Thomas' ..	14,449	1,636	1,130	506	9	29
St. John's ..	15,725	169	1	168	93	94
Stephenson ..	19,205	215	..	215	89	89
Armstrong ..	16,003	178	31	147	90	109
Elswick ..	12,955	253	17	236	51	55
Westgate ..	15,635	90	1	89	174	176
Arthur's Hill ..	11,704	142	6	136	82	86
Benwell ..	18,010	550	20	530	33	34
Fenham ..	11,301	1,189	..	1,189	10	10
All Saints' ..	18,130	176	2	174	103	104
St. Andrew's ..	12,783	173	3	170	74	75
Jesmond ..	11,317	441	35	406	26	28
Dene	12,478	818	37	781	15	16
Heaton ..	15,877	225	76	149	70	106
Byker	17,904	140	..	140	128	128
St. Lawrence ..	18,343	181	3	178	101	103
St. Anthony's .	16,165	601	..	601	27	27
Walker ..	16,467	1,149	37	1,112	14	15
City ..	278,107	8,453	1,400	7,053	33	39

INHABITED HOUSES.—**51,655**, shewing (each flat and each tenement holding being counted as one house) an average of 5.38 persons per dwelling.

RATEABLE VALUE.—**£1,765,539.** A penny rate produced £6,742.

SOCIAL CONDITIONS.—The principal **Trades and Occupations** are of a healthy nature, being generally engineering and machine making ; conveyance of men, goods, and messages ; building and works of construction, *e.g.*, ship building ; and connected with ships and boats, sea-faring and harbour work ; food, tobacco, drink, and lodging ; coal and shale mines ; and commercial or business occupations.

The amount of **Poor Law Relief** granted during the year ended 30th September, 1918, was £31,187 for out-door relief, and £33,992 for indoor maintenance, making a total of **£65,179,** as compared with **£61,197** in the previous year.

The City contains many **Hospitals** and other medical charities, but as wide surrounding districts are also served by them, figures as to patients treated are not of local value.

MARRIAGES.—2,544 Marriages took place during the year, as compared with 2,389 in 1917 and 2,620 in 1916.

BIRTHS.—6,468, equivalent to a rate of **23.3** per 1,000 population, the lowest yet recorded.

DEATHS.—(all causes)—5,380 equivalent to an uncorrected rate of 19.3 per 1,000, and, after deduction of the deaths of 872 non-citizens, and addition of 308 Newcastle residents who died elsewhere, to a corrected rate of 17.3 per 1,000 population. In 1917 the death rate was 15.0

16 deaths were *uncertified.*

Twenty-two **Orders for Burial** (Newcastle-upon-Tyne Improvement Act, 1882, Sec. 47) were given, 7 being in respect of bodies lying in inhabited rooms, and 15 being cases from hospitals.

TOTAL DEATHS DURING RECENT YEARS FROM CERTAIN CLASSES OF DISEASE.

Classification in Table III. of Local Government Board.

	II. Nervous System.	III. Circulatory.	IV. Respiratory.	V. Digestive.	XIII. External Causes.
1912	410	435	603	204	152
1913	457	453	722	332	114
1914	448	505	863	465	142
1915	470	635	873	361	163
1916	477	448	856	281	117
1917	497	478	864	268	135
1918	498	503	957	252	135

INFANTILE MORTALITY.—692 Infants died before completing the first year of life, representing a rate of **107** deaths per 1,000 births.

ZYMOTIC DEATH RATE.—There were 271 deaths from the " Chief Zymotic Diseases " (Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever (Typhus, Simple Continued, and Enteric) and Diarrhœa) which is equivalent to 1.0 deaths per 1,000 population, which is the lowest on record.

TUBERCULOSIS.—531 persons died from various forms of Tuberculosis, 393 being from Pulmonary, and 138 from Other Forms. The equivalent death rates are *All Forms* **1.90**, *Pulmonary* **1.41**, and *Other Forms than Pulmonary* **0.50** per 1,000 population.

For comparison of death rates with previous years see table, page 32A.

For particulars of deaths, as to causes, age, etc., see table, page 38A.

CLIMATOLOGY.—The mean barometer reading was 29.5 in.

The mean maximum temperature was 58.83° F., and the mean minimum 42.09° F.

Measureable rain fell on 161 days, amounting in all to 23.62 inches.

The prevailing winds were westerly, frequency of direction being noted as follows :—

W., N.W., or S.W. on 189 days.
E., N.E., or S.E., on 149 days.
S. on 9 days.
N. on 12 days.

This information is supplied through the courtesy of the proprietors of the *Newcastle Chronicle.*

WATER SUPPLY.—The City is served by the Newcastle and Gateshead Water Company with a plentiful supply of pure upland surface water, collected from large catchment areas at Catcleugh close to the Cheviots, and in lower Northumberland.

It is stored in large impounding reservoirs at Catcleugh, Hallington, and Whittle Dene, and passes through sand filters at Whittle Dene and Throckley.

In the vast majority of cases the household taps are served directly from the mains, without intervening cisterns.

A separate trade supply is piped to some of the great riverside works from a point above the filters.

The Bacteriological reports upon the water samples are given on page 125.

The consumption of water in the City has increased by nearly 25 per cent. since the beginning of the war, chiefly on account of the greatly increased requirements of industry. Coincidently there has been no increase in the area of the filter beds nor in the storage capacity of the reservoirs, and it is not surprising that the results of the bacteriological examinations should show a considerable higher organismal contamination.

SEWERAGE.—There are 277 miles and 760 yards of sewers discharging at various points along the seven miles of river frontage directly into the Tyne, which is tidal.

CLEANSING AND SCAVENGING.—Owing to shortage of labour, etc, due to the War, there is now no regular system of street cleaning. A large increase has been made in the amount of street flushing however, four gangs being regularly employed on this work.

There are 51,659 water closets and 5,337 conservancy system closets in the City. Conversion of the latter was proceeding steadily up to the outbreak of war, at the rate of 600 to 700 per annum. All the schools are served by the water-carriage system.

The scavenging, which includes the removal of dry house refuse, the contents of privy pans, privies, and ashpits is fairly efficiently carried out under circumstances of considerable difficulty.

There are 52,216 dry ashtubs and galvanised iron bins in the City.

MORTALITY RATES, YEAR 1918.

COMPARISON WITH OTHER DISTRICTS.

DISTRICT.	Birth Rate.	General Death Rate	Infantile Mortality Rate.	Death Rate per 1,000 from Enteric Fever, Smallpox. Scarlet Fever, Measles, Whooping Cough, and Diphtheria.	Tuberculosis (all causes) Death Rate.
England and Wales	17.7	17.6	97	0.77	?
96 Great Towns (including London)	17.6	18.2	106	0.91	?
Newcastle-upon-Tyne	**23.3**	**17.3**	**107**	**0.68**	**1.90**
Hull	19.4	21.9	125	1.52	2.23
Leeds	17.29	19.95	133	1.44	2.25
Bradford	13.30	19.15	123	0.90	1.74
Sheffield	20.6	20.5	129	0.87	1.84
Manchester	16.76	18.30	106.7	0.77	1.80
Salford	18.3	18.0	111	1.0	1.6
Liverpool	22.0	19.5	124	1.46	2.29
Nottingham	16.0	20.9	122	0.65	1.81
Leicester	14.92	17.84	108.1	0.39	1.82
Stoke-on-Trent	22.3	20.3	111	1.53	2.07
Birmingham	19.4	15.2	99	0.6	1.60
Cardiff	18.9	18.1	102	0.80	2.14
Bristol	16.10	17·23	95.06	0.96	1.66
Portsmouth	20.96	16.96	74.5	0.94	1.61
London	16.1	18.9	107	1.07	?
Gateshead	25.97	18.95	122	0.83	2.05
South Shields	26.3	22.6	115	0.60	2.55
Tynemouth	23.5	20.4	114.9	0.43	2.6
Sunderland	23.3	24.0	131	1.16	2.40
Middlesborough	25.64	23.67	145	0.84	1.97
*Cnty. of Northumberland	21.54	17.16	101.6	0.65	1.68
*County of Durham	24.7	17.4	119	0.82	1.46

* Administrative County.

TABLE I. OF LOCAL GOVERNMENT BOARD.

Vital Statistics of Whole District during 1918 and Previous Years.

Year	Population estimated to Middle of each Year	Births			Total Deaths Registered in the District		Transferable Deaths		Nett Deaths belonging to the District			
		Uncorrected Number	Nett		Number	Rate	of Non-residents registered in the District	of Residents not registered in the District	Under 1 Year of Age		At all Ages	
			Number	Rate					Number	Rate per 1,000 Nett Births	Number	Rate
1	2	3	4	5	6	7	8	9	10	11	12	12
1906	257,113	8,210			4,831	18.8						
1907	259,082	8,093			4,594	17.7						
1908	261,065	8,382			4,801	18.4						
1909	263,064	7,682			4,459	16.9						
1910	265,077	7,543			4,252	16.0						
1911	267,261	7,089	7,082	26.5	4,667	17.5	448	165	973	137	4,384	16.4
1912	269,193	7,219	7,194	26.7	4,221	15.7	529	146	727	101	3,838	14.5
1913	271,295	7,480	7,460	27.5	4,611	17.0	560	141	908	122	4,192	15.5
1914	271,523	7,564	7,538	27.8	5,069	18.7	546	138	1,029	137	4,660	17.2
1915	278,107	7,575	7,545	27.8†	5,257	18.9	693	207	1,007	133	4,771*	17.2*
1916	278,107	7,332	7,284	26.2	4,875	17.5	680	232	899	123	4.427*	15.9*
1917	278,107	6,548	6,495	23.4	4,646	16.7	718	246	732	113	4.174*	15.0*
1918	278,107	6,555	6,468	23.3	5,380	19.3	872	308	692	107	4.816*	17.3*

Area of District in acres, exclusive of area covered by water. 8,452. Total population at all ages at census 1911, 266,603.
† In accordance with the instructions of the Supt. of Statistics, General Register Office, Somerset House, this rate is calculated on the population for 1914. *Civilians only

Corrected Death Rates in Different Wards, 1918

St. Nicholas'	St. Thomas'	St. John's	Stephenson	Armstrong	Elswick	Westgate	Arthur's Hill	Benwell	Fenham	All Saints'	St, Andrew's	Jesmond	Dene	Heaton	Byker	St. Lawrence	St. Anthony's	Walker	City
14.0	* 12.7	20.4	19 5	18.7	15.6	16.7	* 12.7	18.0	13.8	25.4	19.8	10.5	10.7	17.3	19.7	18.9	19.4	* 14.6	17.3

* All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong,

TABLE II. OF LOCAL GOVERNMENT BOARD.

(See under **Infectious Diseases,** page 63).

TABLE IV. OF LOCAL GOVERNMENT BOARD.

(See under **Infantile Mortality,** page 42A).

TABLE III. OF THE LOCAL GOVERNMENT BOARD.

Return of Deaths from "All Causes" during the 52 Weeks ended 28th December, 1918

Cause of Death	Age Periods																		Wards Gross Deaths																				Transferable Deaths		Nett Deaths	Deaths in Institutions in the City of "Residents" or "Non-Residents"
	Gross.									Nett																																
	Under 1 year	1 year and under 2	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65	65 years and above.	Total	Under 1 year	1 year and under 2	2 years and under 5	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65	65 years and above	Total	Benwell	Fenham	Stephenson	Armstrong	Arthur's Hill	St Nicholas'	Elswick	Westgate	St John's	St Thomas'	St Andrew's	Jesmond	All Saints	Dene	Heaton	Byker	St Lawrence	St Anthony's	Walker	Total	Inward	Outward		
I.—General Diseases.																																										
Enteric Fever	..	..	..	..	2	1	1	..	4	..	..	..	..	..	1	1	..	2	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	4	..	2	2	3
Malaria	..	..	..	..	1	..	..	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Smallpox	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1
Measles	5	10	13	3	1	..	..	..	32	5	11	13	3	1	..	..	..	33	1	1	2	3	1	..	2	1	6	1	1	..	2	..	..	5	3	1	2	32	1	..	33	3
Scarlet Fever	..	..	5	5	2	..	..	..	12	..	..	5	4	2	..	..	..	11	2	..	..	..	..	..	1	1	..	..	..	2	..	2	..	1	..	2	1	12	..	1	11	11
Whooping Cough	43	45	24	7	..	..	..	..	119	43	45	24	7	..	..	..	..	119	14	3	15	10	2	..	..	7	9	4	4	1	16	..	4	4	15	5	6	119	..	..	119	..
Diphtheria	1	7	7	9	..	..	..	..	24	1	6	7	9	..	..	..	..	23	1	..	1	3	1	..	1	..	1	1	..	1	1	4	1	3	2	2	1	24	..	1	23	14
Influenza	8	26	54	87	137	251	106	30	699	8	27	54	87	103	239	116	46	680	37	21	37	51	10	5	25	30	27	73	26	16	44	17	45	54	75	64	42	699	47	66	680	84
Erysipelas	1	..	..	..	1	2	1	..	5	1	..	..	..	1	2	..	..	4	1	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	5	..	1	4	1
Pyæmia, Septicæmia	2	2	..	1	2	1	2	..	10	2	1	..	..	..	1	2	..	6	1	..	1	2	1	..	..	..	..	4	..	..	..	..	..	1	..	..	..	10	..	4	6	8
Tetanus	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1
Mycoses	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1
Pulmonary tuberculosis (not acute)	3	7	3	25	84	168	72	9	371	3	6	2	24	85	175	81	9	385	22	13	22	17	16	5	10	17	24	27	23	50	7	20	28	23	26	21	..	371	42	28	385	122
Acute Phthisis	..	1	..	4	4	2	1	..	12	..	1	..	2	4	1	..	..	8	..	..	1	..	..	..	1	..	..	5	..	..	3	..	2	..	..	..	..	12	2	6	8	8
Acute miliary tuberculosis	..	..	..	..	2	1	..	..	3	..	..	..	..	1	1	..	..	2	..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	3	..	1	2	2
Tuberculous meningitis	11	9	14	17	8	9	..	..	68	9	9	13	14	3	4	..	..	52	4	2	3	1	2	1	5	4	3	16	4	1	2	..	1	5	1	8	5	68	1	17	52	27
Tuberculosis of peritoneum and intestines	6	6	10	24	6	3	4	..	59	5	4	6	16	2	3	3	..	39	4	1	4	1	3	..	1	2	3	19	2	1	2	1	4	6	2	..	3	59	1	21	39	27
Tuberculosis of spinal column	..	..	..	10	1	4	1	..	16	..	..	..	7	..	2	1	..	10	..	1	..	..	1	..	..	..	2	6	1	..	2	..	..	..	2	..	1	16	1	7	10	10
Tuberculosis of joints	..	..	2	4	1	1	..	..	8	..	..	1	3	2	1	1	..	8	1	..	..	..	..	..	..	..	..	2	2	..	..	..	..	1	1	..	1	8	2	2	8	5
Tuberculosis of other organs	..	..	..	1	3	3	..	1	8	..	..	..	1	2	2	..	1	6	..	1	2	..	..	..	..	..	..	2	..	..	..	..	..	..	..	1	2	8	..	2	6	3
Disseminated tuberculosis	..	3	4	4	2	4	3	1	21	..	3	4	3	2	5	3	1	21	1	1	1	..	..	..	..	1	..	1	1	2	5	..	2	5	1	..	..	21	1	1	21	13
Total Tuberculosis	20	26	33	89	111	195	81	11	566	17	23	26	70	101	194	89	11	531	32	19	34	19	22	6	18	24	32	78	33	54	21	21	38	40	33	30	12	566	50	85	531	217
Rickets, softening of bones	2	7	2	1	..	..	..	..	12	1	6	..	..	..	..	..	..	7	..	..	1	..	..	..	..	1	3	5	..	..	1	..	..	..	..	1	..	12	..	5	7	6
Syphilis	12	..	..	..	1	3	2	..	18	11	..	..	..	..	1	1	..	13	..	..	2	..	3	..	..	..	6	2	1	1	1	..	..	1	1	..	..	18	..	5	13	10
Other venereal diseases	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1
Cancer of the buccal cavity	..	..	..	1	..	3	17	5	26	..	..	..	1	..	2	11	2	16	..	2	2	1	..	1	1	1	1	9	1	..	1	1	..	4	..	..	1	26	..	10	16	12
Cancer of the stomach, liver, etc.	1	..	..	..	..	13	57	27	98	..	..	..	..	..	9	43	25	77	8	5	2	3	4	1	6	..	5	30	7	1	4	..	2	4	4	4	3	98	4	25	77	34
Cancer of the peritoneum, intestines, and rectum	..	..	1	..	..	3	31	24	59	..	..	1	..	..	2	19	21	43	3	1	5	2	6	..	3	4	2	19	1	5	1	..	2	1	2	..	2	59	1	17	43	25
Cancer of the female genital organs	..	..	..	..	..	7	19	7	33	..	..	..	..	..	7	17	6	30	2	2	1	5	..	..	1	2	4	3	3	..	2	2	1	2	1	1	..	33	..	3	30	7
Cancer of the breast	..	..	..	..	..	3	12	10	25	..	..	..	..	..	3	11	9	23	2	2	2	1	3	..	2	2	..	5	1	1	1	..	1	..	1	..	1	25	2	4	23	7
Cancer of the skin	..	..	..	..	..	..	5	2	7	..	..	..	..	..	..	5	2	7	1	..	..	..	1	..	1	..	2	..	..	..	..	..	1	..	..	1	..	7	..	..	7	3
Cancer of other or unspecified organs	..	..	..	..	1	6	22	13	42	..	..	..	..	1	2	14	12	29	3	..	8	2	..	..	..	1	2	11	4	3	2	3	1	1	1	..	..	42	..	13	29	20
Other tumours (situation undefined)	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..
Rheumatic fever	..	..	..	2	3	6	1	1	13	..	..	..	1	3	6	1	1	12	3	..	..	..	1	..	1	..	1	1	..	..	1	..	1	..	1	1	2	13	..	1	12	1
Chronic rheumatism, Osteo-arthritis	..	..	..	..	..	..	3	5	8	..	..	..	..	..	..	3	5	8	2	..	..	..	1	..	1	1	..	..	..	..	1	..	1	1	..	..	..	8	..	..	8	3
Scurvy	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	1	1
Diabetes	..	..	..	1	4	7	9	4	25	..	..	..	1	3	6	8	4	22	5	1	1	1	3	1	1	3	..	3	1	..	2	1	1	..	..	..	1	25	..	3	22	6
Exophthalmic goître	..	..	..	..	1	2	4	..	7	..	..	..	..	..	2	4	..	6	1	1	..	..	..	..	1	..	..	2	1	..	..	1	..	..	..	..	..	7	..	1	6	2
Leucocythæmia, Lymphadenoma	..	..	..	..	2	2	5	..	9	..	..	..	..	2	1	5	..	8	..	..	..	..	3	1	1	..	..	1	..	..	1	..	..	1	..	..	1	9	..	1	8	3
Anæmia, Chlorosis	..	..	..	1	2	6	7	8	24	..	..	..	1	1	4	6	8	20	1	..	2	2	..	1	1	1	1	5	..	2	2	1	1	1	2	1	..	24	3	7	20	11
Other general diseases	..	..	..	1	..	1	..	..	2	..	..	..	1	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	2	..	..	2	1
Alcholism (acute or chronic)	..	..	..	..	..	..	2	..	2	..	..	..	..	..	2	1	..	3	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	2	2	1	3	1
II. Diseases of the Nervous System and Organs of Special Sense.																																										
Encephalitis	..	..	..	..	1	2	..	..	3	..	..	..	..	1	1	..	..	2	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	3	..	1	2	3
Cerebro-spinal fever	1	2	1	2	4	..	..	..	10	1	1	1	3	..	..	..	..	6	1	1	1	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	3	10	1	5	6	9
Meningitis (other forms or undefined)	9	10	4	8	3	6	2	1	43	9	10	4	8	2	4	1	1	39	7	2	5	..	..	..	3	2	3	4	2	..	4	..	1	2	5	2	1	43	1	5	39	11
Locomotor ataxy	..	..	..	..	..	1	4	3	8	..	..	..	..	..	1	5	3	9	..	..	1	1	..	..	..	1	..	1	..	..	1	..	1	..	1	1	..	8	1	..	9	4
Other diseases of the spinal cord	1	..	..	1	2	7	8	5	24	1	..	..	1	..	3	5	5	15	1	1	1	1	2	..	1	1	1	9	..	1	1	1	..	..	2	1	..	24	..	9	15	15
Cerebral hæmorrhage, Apoplexy	2	..	..	..	2	15	86	115	220	2	..	..	..	2	14	89	117	224	12	7	17	16	8	3	9	17	15	16	15	4	25	9	7	13	5	10	12	220	15	11	224	51
Softening of the brain	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	1	1	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	3	..
Paralysis without specified cause	..	..	1	..	..	2	11	15	29	..	..	1	..	..	2	12	16	31	..	2	..	3	..	..	3	..	2	2	1	..	6	1	3	2	3	1	..	29	2	..	31	5
General paralysis of the insane	..	..	..	..	..	2	1	..	3	..	..	..	..	..	15	14	1	30	1	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	3	27	..	30	2
Other forms of mental alienation	..	..	..	..	..	..	2	..	2	..	..	..	..	..	1	2	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	2	1	..	3	..
Epilepsy	1	..	..	3	1	1	5	..	11	1	..	..	2	4	6	8	1	22	..	..	5	..	..	..	1	1	..	1	1	..	1	..	..	1	..	..	..	11	12	1	22	4
Convulsions (non-puerperal; 5 years and over	..	..	..	2	..	..	..	..	2	..	..	..	2	..	..	..	..	2	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	..	2	..
Infantile convulsions (under 5 years)	66	9	7	..	..	..	..	..	82	66	9	7	..	..	..	..	..	82	4	5	5	6	..	..	3	8	9	3	4	..	6	..	4	8	10	4	3	82	..	..	82	..
Hysteria, Neuralgia, Neuritis	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	..
Other diseases of the nervous system	..	1	..	2	1	2	3	1	10	..	..	..	3	..	4	8	2	17	2	..	..	..	..	..	..	1	..	3	1	..	1	..	..	..	..	1	1	10	11	4	17	6
Mastoid disease	1	1	1	2	2	1	..	..	8	1	..	..	..	1	..	..	..	2	..	1	1	..	..	..	..	..	..	5	..	..	..	..	1	..	..	..	..	8	..	6	2	7
Other diseases of the ears	1	3	1	3	2	2	1	1	14	..	2	1	3	1	1	1	1	10	..	..	3	..	1	..	2	..	2	3	..	..	1	1	..	..	..	..	1	14	..	4	10	7
III.—Diseases of the Circulatory System.																																										
Pericarditis	1	..	1	..	3	1	1	..	7	1	..	1	..	3	1	1	..	7	..	..	1	1	..	..	..	1	1	..	..	..	1	..	..	1	..	..	1	7	..	..	7	3
Acute endocarditis	..	..	1	2	7	7	10	1	28	..	..	1	1	5	5	10	1	23	3	..	..	2	2	..	..	2	2	7	1	..	3	1	1	..	1	3	..	28	..	5	23	11
Valvular disease, Fatty degeneration of the heart	..	..	..	4	11	56	99	72	242	..	..	..	4	9	46	96	85	240	8	4	17	8	8	3	15	12	16	26	12	6	33	6	20	7	15	13	13	242	22	24	240	61
Other organic diseases of the heart	..	..	..	2	..	9	35	50	96	..	..	..	2	8	37	52	..	99	7	2	13	3	4	..	9	3	2	5	4	6	1	5	6	7	8	4	7	96	7	4	99	6
Angina pectoris	..	..	..	..	..	2	10	4	16	..	..	..	..	..	2	9	4	15		..	1	2	1	1	1	..	..	2	..	1	1	1	1	1	..	3	..	16	..	1	15	1
Aneurism	..	..	..	..	..	..	11	3	14	..	..	..	..	..	..	9	2	11	1	..	1	2	1	2	..	..	..	2	1	..	..	2	1	1	..	..	..	14	..	3	11	4
Arterial Sclerosis	..	..	..	..	..	1	13	65	79	..	..	..	..	..	1	13	70	84	3	3	3	3	1	..	8	7	5	6	8	1	10	..	5	4	4	4	4	79	6	1	84	45
Cerebral embolism and thrombosis	..	..	..	..	2	..	4	12	18	..	..	..	..	..	..	5	12	17	..	..	7	2	..	..	2	1	1	2	..	3	..	..	..	..	..	..	..	18	1	2	17	3
Other embolism and thrombosis	..	..	..	..	..	2	..	1	3	..	..	..	..	..	2	..	1	3	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	3	..	..	3	..
Diseases of the veins (Varices, Hæmorrhoids, Phlebitis, etc.)	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	1	1	1
Status lymphaticus	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	1
Hæmorrhage, other diseases of the circulatory system	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
IV.—Diseases of the Respiratory System.																																										
Diseases of the larynx	6	5	1	..	..	1	1	..	14	6	5	1	..	..	1	1	..	14	..	..	..	1	..	..	1	2	1	4	1	..	1	..	2	1	..	..	..	14	..	..	14	1
Diseases of the thyroid body	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1
Bronchitis	58	17	15	6	4	19	90	144	353	57	17	15	6	3	18	86	146	348	20	11	30	20	8	4	14	16	28	21	19	7	49	7	18	28	19	22	12	*353	6	11	348	60
Broncho-pneumonia	66	70	51	26	11	18	30	14	286	60	68	49	25	7	8	29	15	261	20	7	22	12	3	4	7	9	22	33	18	5	26	4	9	24	27	24	9	286	2	27	261	72
Lobar pneumonia	1	4	8	7	21	30	30	9	110	1	3	6	5	12	24	33	9	93	7	2	8	8	1	1	5	8	10	29	2	..	5	2	8	5	2	2	5	110	6	23	93	32
Pneumonia (type not stated)	11	8	11	13	40	71	47	28	229	10	8	10	14	13	43	49	29	186	20	6	13	15	6	5	4	12	7	59	10	3	12	4	12	14	12	10	5	229	9	52	186	81
Pleurisy	..	2	1	5	1	6	5	1	21	..	1	..	5	..	2	4	1	13	..	..	3	1	..	..	1	1	..	6	1	..	1	..	..	..	2	3	2	21	..	8	13	10
Pulmonary congestion, Pulmonary apoplexy	1	..	..	..	..	..	1	3.	5	1	..	..	..	..	..	2	4	7	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	3	..	..	5	2	..	7	..
Gangrene of the lung	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	1	1
Asthma	..	..	..	..	..	7	15	4	26	..	..	..	..	..	6	14	4	24	2	1	..	1	1	..	..	1	1	2	..	..	3	1	2	3	5	2	1	26	..	2	24	2
Pulmonary emphysema	..	..	..	..	1	..	1	3	5	..	..	..	..	..	..	..	3	3	..	1	1	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	5	..	2	3	2
Fibroid disease of lung	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Other diseases of the respiratory system	..	..	..	..	..	2	3	2	7	..	..	..	..	..	1	3	2	6	..	2	1	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	2	7	..	1	6	1
Carried Forward	321	255	244	297	391	789	921	706	3,924	306	243	228	269	293	709	907	741	3,696	244	116	278	217	109	40	158	194	231	522	184	79	342	86	197	253	262	228	183	3 924	245	473	3,696	1 021

Table III. of the Local Government Board—Continued.

Return of Deaths from "All Causes" during the 52 Weeks ended 28th December, 1918.

Cause of Death	Age Periods — Gross									Age Periods — Nett									Wards—Gross Deaths																			Total	Transferable Deaths		Nett Deaths	Deaths in Institutions in the City of Residents and Non-Residents
	Under 1 year	1 year and under 2	2 years and under 5	5 years and under 15	15 years and under 25	25 years and under 45	45 years and under 65	65 years and above	Total	Under 1 year	1 year and under 2	2 years and under 5	5 years and under 15	15 years and under 25	25 years and under 45	45 years and under 65	65 years and above	Total	Benwell	Fenham	Stephenson	Armstrong	Arthur's Hill	St Nicholas'	Elswick	Westgate	St John's	St Thomas'	St Andrew's	Jesmond	All Saints	Dene	Heaton	Byker	St Lawrence	St Anthony's	Walker		Inward	Outward		
Brought Forward	321	255	244	297	391	789	921	706	3,924	306	243	228	269	293	709	907	741	3,696	244	116	278	217	109	40	158	194	231	522	184	79	342	86	197	253	262	228	183	3,924	245	473	3,696	1,021
V.—Diseases of Digestive System.																																										
Diseases of the teeth and gums	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	
Other diseases of the mouth and annexa	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	
Diseases of the pharynx Tonsilitis	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	
Diseases of the Œsophagus	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	1	
Perforating ulcer of stomach	..	..	..	..	3	10	10	3	26	..	..	..	..	1	2	5	4	12	1	..	..	1	..	..	..	1	1	19	1	..	..	..	..	2	..	..	..	26	1	15	12	19
Inflammation of stomach	15	2	1	1	1	2	5	8	35	15	2	1	1	1	2	5	8	35	..	..	4	2	..	..	1	..	..	2	7	1	2	1	4	1	4	3	3	35	..	..	35	1
Other diseases of the stomach	2	..	..	2	..	1	..	..	5	1	..	..	2	..	1	..	..	4	..	..	2	..	..	1	..	..	..	1	..	..	..	..	..	..	1	..	..	5	..	1	4	1
Diarrhœa and enteritis (under 2 years), including Dysentery, Epidemic or zymotic enteritis, and Intestinal catarrh	52	32	..	..	..	..	..	..	84	51	32	..	..	..	..	..	..	83	6	7	6	5	2	..	1	1	7	4	6	1	6	..	3	8	10	8	3	84	2	3	83	12
Diarrhœa and enteritis (2 years and over)	..	..	11	5	..	16	9	11	52	..	..	11	4	..	8	7	10	40	..	1	3	4	3	..	1	1	1	15	2	..	4	1	2	2	3	6	3	52	2	14	40	17
Appendicitis	..	..	3	12	12	8	1	..	39	..	..	2	2	2	..	2	..	8	1	..	1	1	..	..	1	..	1	27	3	1	1	1	..	..	..	..	1	39	..	31	8	32
Hernia, Intestinal obstruction	14	2	2	6	6	23	26	20	99	9	1	1	3	1	5	7	11	38	6	2	6	1	1	..	2	2	2	61	4	..	2	2	..	2	..	3	3	99	1	62	38	83
Other diseases of the Intestines	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1
Cirrhosis of the liver	..	..	..	..	1	4	8	3	16	..	..	..	..	..	1	6	3	10	..	..	..	..	..	..	1	1	1	6	1	2	..	..	1	1	1	..	1	16	..	6	10	8
Biliary calculi	..	..	..	..	..	2	4	5	11	..	..	..	..	..	1	1	5	7	..	1	1	..	..	..	1	..	1	4	..	1	..	..	..	2	..	..	..	11	..	4	7	4
Other diseases of the liver	..	..	..	3	..	4	7	2	16	..	..	..	3	..	..	4	2	9	..	2	1	2	1	..	1	..	..	6	1	1	..	..	..	..	1	1	..	16	..	7	9	6
Peritonitis (cause unstated)	..	..	1	1	1	..	..	2	5	..	..	..	..	..	..	..	2	2	..	..	..	..	1	..	..	..	1	3	..	..	..	..	..	..	..	..	..	5	..	3	2	3
Other diseases of the digestive system	..	..	..	..	..	1	1	..	2	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	2	..	..	2	1
VI.—Non-Venereal Diseases of Genito-Urinary System and Annexa.																																										
Acute nephritis	..	1	6	3	3	4	4	..	21	..	1	5	3	2	2	6	3	22	..	..	1	1	..	..	1	2	2	4	..	..	3	..	..	3	2	1	1	21	5	4	22	7
Bright's disease	..	..	..	7	11	28	49	41	136	..	..	..	6	7	20	40	41	114	2	1	4	5	6	2	7	8	11	35	3	9	6	7	8	8	5	4	5	136	5	27	114	41
Other diseases of the kidney and annexa	..	..	..	..	2	4	5	2	13	..	..	..	..	..	..	1	2	3	..	..	..	1	..	..	..	..	..	6	3	1	1	..	..	..	..	1	..	13	..	10	3	7
Calculi of urinary passage	..	..	..	1	..	1	..	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	3	..	3	..	3
Diseases of the bladder	..	..	..	1	..	..	8	5	14	..	..	..	1	..	..	5	5	11	2	..	1	..	..	2	..	..	4	..	1	1	..	1	1	1	..	..	..	14	..	3	11	5
Diseases of the urethra, Urinary abscess, etc.	..	..	..	..	..	..	4	..	4	..	..	..	..	..	..	4	..	4	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	4	..	..	4	3
Diseases of the prostate	..	..	..	..	..	..	7	9	16	..	..	..	..	..	..	2	4	6	..	..	..	..	1	..	1	..	..	11	..	..	2	..	..	..	..	..	1	16	1	11	6	12
Uterine tumour (non cancerous)	..	..	..	..	..	1	1	..	2	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	2	..	..	2	..
Ovarian cyst, tumour (non-cancerous)	..	..	..	..	..	1	2	1	4	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	1	2	1	..	..	..	..	..	..	..	4	..	2	2	1
Other diseases of the female genital organs	..	..	..	..	1	3	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	4	..	4	..	3
VII.—The Puerperal State.																																										
Accidents of pregnancy	..	..	..	..	..	4	..	..	4	..	..	..	..	..	3	..	..	3	2	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	4	..	1	3	3
Puerperal hæmorrhage	..	..	..	..	..	4	..	..	4	..	..	..	..	..	4	..	..	4	..	..	2	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	4	..	..	4	..
Other accidents of child birth	..	..	..	..	1	5	1	..	7	..	..	..	..	1	4	..	..	5	..	..	..	..	..	..	1	1	..	4	..	..	1	..	..	..	..	..	..	7	..	2	5	1
Puerperal fever	..	..	..	..	2	4	..	..	6	..	..	..	..	2	3	..	..	5	..	..	1	1	..	..	..	1	..	..	..	..	2	..	..	..	..	1	..	6	..	1	5	5
Puerperal albuminuria and convulsions	..	..	..	..	3	3	..	..	6	..	..	..	..	..	3	..	..	3	..	..	..	1	..	..	..	..	1	..	..	..	3	..	..	..	..	..	1	6	..	3	3	4
Puerperal insanity	..	..	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1
VIII.—Diseases of the Skin and Cellular Tissue.																																										
Senile gangrene	..	..	..	..	..	..	2	4	6	..	..	..	..	..	..	2	6	8	..	..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	2	1	..	6	2	..	8	1
Gangrene, other types	..	2	1	1	1	4	2	..	11	..	1	1	..	1	1	1	..	5	..	..	..	1	..	..	..	..	2	6	..	..	1	..	1	..	..	..	..	11	..	6	5	9
Carbuncle, Boil	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	2	..	1	1	1
Phlegmon, acute abscess	2	..	..	..	1	1	..	..	4	2	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	4	..	2	2	2
Diseases of the integumentary system	6	..	1	..	..	..	..	..	7	6	..	1	..	..	..	..	..	7	..	2	..	..	..	..	1	..	2	..	1	..	..	..	..	..	1	..	..	7	..	..	7	1
IX.—Diseases of Bones, etc.																																										
Diseases of the bones	..	..	..	7	1	..	1	..	9	..	..	..	3	..	..	1	..	4	1	..	..	..	..	..	..	..	..	6	1	..	..	..	..	..	..	1	..	9	..	5	4	9
Diseases of the joints	..	..	..	1	1	1	1	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	1	..	..	..	4	..	4	..	4
X.—Malformations.																																										
Congenital Malformations	25	1	2	..	..	2	..	..	30	20	..	1	..	..	2	..	..	23	4	..	3	2	..	..	3	2	2	7	1	..	1	1	2	..	1	..	1	30	..	7	23	10
XI.—Diseases of Early Infancy.																																										
Premature birth	179	..	..	..	..	..	..	..	179	177			..	..	..	..	..	177	13	5	16	13	3	..	4	10	15	8	6	4	21	5	7	13	10	16	10	179	1	3	177	20
Infantile atrophy, debility and marasmus	90	..	..	..	..	..	..	..	90	84	..	..	..	..	..	..	..	84	5	2	4	2	1	..	1	4	7	8	6	..	8	9	11	7	8	7	..	90	1	7	84	18
Icterus neonatorum, Sclerema and œdema neonatorum	2	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	2	..
Diseases of the umbilicus, etc.	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Atelectasis	3	..	..	..	..	..	..	..	3	2	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	3	..	1	2	1
Injuries at birth	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..
Other diseases peculiar to early infancy	4	..	..	..	..	..	..	..	4	3	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	1	..	4	..	1	3	1
Lack of care	3	..	..	..	..	..	..	..	3	3	..	..	..	..	..	..	..	3	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	3	..	..	3	..
XII.—Old Age.																																										
Old age	..	..	..	..	..	..	2	176	178	..	..	..	..	..	..	3	183	186	11	8	7	7	5	1	24	9	7	10	6	4	8	11	20	13	9	10	8	178	23	15	186	23
XIII.—Affections produced by External Causes.																																										
Suicide	..	..	..	..	1	8	7	1	17	..	..	..	..	..	7	8	2	17	..	..	3	1	..	..	1	2	..	2	2	..	1	2	..	1	1	..	1	17	2	2	17	4
Other acute poisonings	..	..	1	1	..	2	..	..	4	..	..	1	1	..	..	..	..	2	..	..	1	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	4	..	2	2	2
Burns (conflagration excepted)	3	8	13	12	7	4	2	2	51	3	7	9	11	..	..	2	..	32	..	..	6	3	..	..	1	3	1	20	4	..	3	1	..	4	2	1	2	51	1	20	32	45
Accidental drowning	..	..	1	1	1	2	1	1	7	..	..	1	2	..	2	2	..	7	1	..	1	1	..	..	..	..	..	..	1	..	..	..	..	1	1	..	1	7	2	2	7	..
Injury by firefirms	..	..	..	..	2	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	3	..	3	..	3
Injury by cutting or piercing instruments	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	1
Injury by fall	1	..	..	1	12	5	13	10	42	1	..	..	1	4	2	9	8	25	..	..	3	1	1	..	1	1	1	18	1	..	5	3	..	5	1	..	1	42	2	19	25	29
Injury in mines and quarries	..	..	..	..	1	4	2	..	7	..	..	..	..	2	1	..	..	3	..	..	..	..	..	..	..	..	..	7	..	..	..	..	..	..	..	..	..	7	2	6	3	7
Injury by machines	..	..	..	..	1	..	2	..	3	..	..	..	..	..	..	1	..	1	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	3	..	2	1	1
Injury by other crushing (vehicles, railways, landslides, ets.)	..	..	4	8	4	10	13	7	46	..	..	3	5	2	4	7	1	22	3	1	1	7	..	..	..	1	3	21	2	1	..	..	..	1	2	1	2	46	2	26	22	38
Electricity (lightning excepted)	..	..	..	1	1	..	..	..	2	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	2	..	1	1	..
Other violence	4	..	..	1	8	10	7	5	35	4	..	..	..	5	4	7	5	.25	..	..	..	3	1	..	1	..	1	12	1	1	4	..	1	1	2	3	4	35	3	13	25	22
War—gunshot wounds, etc.	..	..	..	..	14	6	..	..	20	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	1	16	..	..	..	..	..	..	..	..	1	20	..	20	..	21
XIV.—Ill-Defined Causes.																																										
Dropsy	..	..	..	..	..	..	2	1	3	..	..	..	..	..	..	2	1	3	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	3	..	..	3	..
Syncope (aged 1 year and under 70)	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	2	..	1	1	..
Heart failure (aged 1 year and under 70)	..	..	..	..	..	1	1	1	3	..	..	..	..	1	2	2	..	5	..	..	..	..	..	..	1	..	..	..	1	..	1	..	..	..	..	..	..	3	2	..	5	..
Atrophy, debility marasmus (aged 1 year and under 70)	..	16	3	..	..	3	..	1	23	..	14	2	..	..	3	..	1	20	1	1	1	2	..	..	1	..	3	3	..	1	2	..	..	5	..	2	1	23	..	3	20	4
Other ill-defined deaths	..	..	..	..	..	1	..	..	1	..	..	..	..	..	2	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	2	1
Cause not specified	..	..	..	..	2	4	4	2	12	..	..	..	..	..	5	2	1	8	..	..	..	1	..	3	..	1	..	..	..	..	4	..	1	..	2	..	..	12	1	5	8	..
Total	729	319	295	373	196	994	1141	1033	5,380	692	301	267	318	324	805	1054	1055	*4,816	307	150	362	290	135	48	220	247	308	905	253	112	440	122	259	340	334	302	246	5,380	308	872	*4,816	1,584
Nett Deaths																			325	156	375	299	149	51	202	261	320	184	253	119	461	134	274	353	346	313	241	*4816				

* Civilians only.

REPORT OF THE
CHIEF HEALTH VISITOR AND
SUPERINTENDENT OF MIDWIVES.

II.—THE CHILD.

INFANTILE MORTALITY, MATERNITY AND CHILD WELFARE.

INFANTILE MORTALITY.

SUMMARY OF BIRTHS AND DEATHS, 1918.

	LEGITIMATE.			ILLEGITIMATE.			Grand Total.
	M.	F.	Total	M.	F.	Total	
Total Births in the Year	3,266	2,929	6,195	176	184	360	6,555
Nett ,, ,,	3,214	2,896	6,110	178	180	358	6,468
Nett Deaths ,,	378	258	636	32	24	56	692

BIRTHS (UNCORRECTED) IN WARDS IN THE DIFFERENT QUARTERS OF THE YEAR 1918.

WARD.	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTALS
St. Nicholas'	11	16	13	16	56
St. Thomas'	61	64	62	60	247
St. John's	97	111	91	119	418
Stephenson..	136	127	119	125	507
Armstrong	117	112	122	113	464
Elswick	61	64	73	69	267
Westgate	81	80	88	71	320
Arthur's Hill	34	45	18	35	132
Benwell	134	172	118	133	557
Fenham	82	84	62	69	297
All Saints'	110	113	138	104	465
St. Andrew's	63	64	66	74	267
Jesmond	28	37	34	37	136
Dene	53	46	41	48	188
Heaton	63	61	68	81	273
Byker	123	108	109	118	458
St. Lawrence	141	123	125	127	516
St. Anthony's	123	124	144	137	528
Walker	113	119	95	132	459
City	1,631	1,670	1,586	1,668	6,555

DISTRIBUTION OF DEATHS.

WARDS.	Net Deaths of Children under 1 year of age in 1918.					Children under 1 yr. of age—Death rate per 1,000 Births.	Birth Rate per 1,000 Population (Uncorrected).
	1st Quarter.	2nd Quarte.r	3rd Quarter.	4th Quarter.	Whole Year.		
St. Nicholas' ..	..	..	1	1	2	31	15.3
St. Thomas' ..	6	10	4	3	23	93	17.1
St. John's ..	21	16	18	16	71	170	26.6
Stephenson ..	16	21	10	15	62	122	26.5
Armstrong ..	9	10	9	14	42	90	29.0
Elswick ..	5	6	3	4	18	67	20.6
Westgate ..	11	10	10	9	40	125	20.5
Arthur's Hill ..	2	2	1	..	5	38	11.3
Benwell ..	11	20	12	12	55	99	30.9
Fenham ..	5	4	4	6	19	64	26.3
All Saints' ..	26	12	17	8	63	135	25.6
St. Andrew's ..	7	5	14	10	36	135	20.9
Jesmond ..	1	4	2	..	7	51	12.0
Dene	3	1	2	5	11	58	15.0
Heaton ..	8	7	10	12	37	136	17.2
Byker.. ..	17	10	18	11	56	122	25.6
St. Lawrence .	21	13	15	7	56	109	28.1
St. Anthony's .	13	9	16	15	53	100	32.7
Walker ..	7	7	10	12	36	78	27.9
City	198	167	176	160	692	107	23.6

All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

SUMMARY OF MORTALITY, 1901-1918.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918
Death-rate of Infants *under* 1 *year* per 1,000 births ..	177	139	166	155	138	153	126	139	122	123	137	101	122	137	133	123	113	107
Death-rate of Infants *under* 3 *months* per 1,000 births	83.8	74.8	84.9	82.6	71.6	75.6	68.6	76.6	64.8	66.9	71.5	60.3	67.7	70.7	68.2	66.2	58.7	37.7
Death-rate of Infants from *Premature Birth,* per 1,000 births	20.1	20.7	25.1	20.9	19.7	22.0	21.2	24.8	19.8	18.8	21.7	19.3	22.0	19.5	24.0	22.0	22.3	27.4
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Premature Birth* plus all *Congenital Causes** ..	40.8	51.7	62.1	60.6	52.1	61.5	43.0	44.6	42.3	42.6	43.9	48.0	57.4	51.1	56.6	51.0	46.0	45.3
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Diarrhœa and all other Digestive Diseases*† ..	45.7	12.8	26.9	21.8	22.4	35.2	12.7	24.8	13.5	16.7	25.1	7.8	16.6	25.3	20.1	14.3	14.8	11.9
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Infantile Atrophy, Debility and Marasmus*	15.8	19.8	30.8	29.2	24.4	31.4	11.1	10.6	14.6	13.5	22.7	21.4	25.6	23.0	25.0	22.4	17.7	13.0
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Measles*	....	....	....	....	....	5.35	2.60	0.60	3.64	2.23	4.95	3.61	2.28	4.65	6.90	2.50	2.46	0.77
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Whooping Cough* ..	....	....	....	....	....	3.42	7.30	5.73	4.30	5.05	7.35	2.78	5.50	5.20	5.17	4.10	3.70	6.65
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Respiratory Diseases* ..	...	....	....	....	....	20.8	24.6	27.0	24.4	25.2	26.4	20.4	22.2	30.6	24.9	28.0	27.0	20.9
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Tuberculosis* (all forms) .	....	....	....	....	....	3.53	3.71	4.65	4.55	4.25	2.40	3.20	3.88	3.88	3.40	2.60	1.54	2.63

Prior to 1911 figures uncorrected for cases belonging to other districts.

* " *All Congenital Causes* " includes Syphilis, Debility at Birth, Injury at Birth, Atelectasis, Malformation of Heart, Spina Bifida, Hydrocephalus, Imperforate Anus, Cleft Palate, Hare-Lip, other Congenital defects, and other and undefined Accidents of Childbirth.

† " *Diarrhœa and all other Digestive Diseases* " includes Diarrhœa, Dysentery, Epidemic or Zymotic Enteritis, Thrush, Starvation, Want of Breast Milk, Rickets, Sore Throat, Quinsy, Diseases of the Stomach, Enteritis, Cirrhosis of Liver, Obstruction of Intestine, Peritonitis, and other Diseases of the Digestive System.

DEATH RATE PER 1,000 POPULATION FROM " THE PUERPERAL STATE."

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918
Population ..	216,150	216,275	217,010	217,862	255,160	257,113	259,082	261,065	263,064	265,077	267,261	269,193	271,295	271,523	278,107	278,107	278,107	278,107
Deaths	31	39	20	30	23	19	16	27	27	24	29	29	23	22	28	37	18	21
Rate	0.14	0.18	0.09	0.14	0.09	0.07	0.06	0.13	0.12	0.09	0.19	0.17	0.13	0.08	0.10	0.13	0.06	0.08

For particulars of deaths, as to causes, etc., see page 42A.

DEATHS OF CHILDREN UNDER SCHOOL AGE.

The mortality rate among children, aged 1 to 5 years, in 1918, per 1,000 births in the years 1914 to 1917 (inclusive) was 16.3. The corresponding figure for each of the previous four years was as follows:—1917, 16.0; 1916, 15.9; 1915, 21.7; 1914, 23.8.

SUMMARY OF MORTALITY, 1901-1918.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918
Death-rate of Infants *under* 1 *year* per 1,000 births ..	177	139	166	155	138	153	123	139	122	123	137	101	122	137	133	123	113	107
Death-rate of Infants *under* 3 *months* per 1,000 births	83.8	74.8	84.9	82.6	71.6	75.6	68.6	76.6	64.8	66.9	71.5	60.3	67.7	70.7	68.2	66.2	58.7	37.7
Death-rate of Infants from *Premature Birth*, per 1,000 births	20.1	20.7	25.1	20.9	19.7	22.0	21.2	24.8	19.8	18.8	21.7	19.3	22.0	19.5	24.0	22.0	22.3	27.4
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Premature Birth* plus all *Congenital Causes** ..	40.8	51.7	62.1	60.6	52.1	61.5	43.0	44.6	42.3	42.6	43.9	48.0	57.4	51.1	56.6	51.0	46.0	45.3
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Diarrhœa and all other Digestive Diseases*† ..	45.7	12.8	26.9	21.8	22.4	35.2	12.7	24.8	13.5	16.7	25.1	7.8	16.6	25.3	20.1	14.3	14.8	11.9
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Infantile Atrophy, Debility and Marasmus*	15.8	19.8	30.8	29.2	24.4	31.4	11.1	10.6	14.6	13.5	22.7	21.4	25.6	23.0	25.0	22.4	17.7	13.0
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Measles*	....	....	....	....	....	5.35	2.60	0.60	3.64	2.23	4.95	3.61	2.28	4.65	6.90	2.50	2.46	0.77
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Whooping Cough* ..	....	....	....	....	....	3.42	7.30	5.73	4.30	5.05	7.35	2.78	5.50	5.20	5.17	4.10	3.70	6.65
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Respiratory Diseases* ..	...	....	....	....	....	20.8	24.6	27.0	24.4	25.2	26.4	20.4	22.2	30.6	24.9	28.0	27.0	20.9
Death-rate of Infants *under* 1 *year* per 1,000 births, from *Tuberculosis* (all forms) .	....	....	....	....	....	3.53	3.71	4.65	4.55	4.25	2.40	3.20	3.88	3.88	3.40	2.60	1.54	2.63

Prior to 1911 figures uncorrected for cases belonging to other districts.

* "*All Congenital Causes*" includes Syphilis, Debility at Birth, Injury at Birth, Atelectasis, Malformation of Heart, Spina Bifida, Hydrocephalus, Imperforate Anus, Cleft Palate, Hare-Lip, other Congenital defects, and other and undefined Accidents of Childbirth.

† "*Diarrhœa and all other Digestive Diseases*" includes Diarrhœa, Dysentery, Epidemic or Zymotic Enteritis, Thrush, Starvation, Want of Breast Milk, Rickets, Sore Throat, Quinsy, Diseases of the Stomach, Enteritis, Cirrhosis of Liver, Obstruction of Intestine, Peritonitis, and other Diseases of the Digestive System.

For particulars of deaths, as to causes, etc., see page 42A.

DEATHS OF CHILDREN UNDER SCHOOL AGE.

The mortality rate among children, aged 1 to 5 years, in 1918, per 1,000 births in the years 1914 to 1917 (inclusive) was 16.3. The corresponding figure for each of the previous four years was as follows:—1917, 16.0; 1916, 15.9; 1915, 21.7; 1914, 23.8.

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Population ..	216,150	216,275	217,010	217,862	255,160	257,113	259,082	261,065	263,064	265,077	267,261	269,193	271,295	271,523	278,107	278,107	278,107	278,107
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The Report of the Chief Health Visitor and Superintendent of Midwives is as follows:—

To the Medical Officer of Health.

Sir,

Herewith I beg to submit my report of work done in the year 1918.

MIDWIVES ACT, 1902.

During the year 1918 31 midwives notified the Local Supervising Authority of their intention to practise; of these, 19 hold the Certificate of the Central Midwives Board, or of a recognised Hospital, the remainder being on the register before the passing of the Midwives Act. This number shows a decrease of 3 holding the C.M.B. Certificate, but the same number of bona fide practitioners as the previous year. About 20 out of the total number do the actual midwifery work, the remaining number doing only odd cases, or entirely monthly cases. This seems a remarkably small number considering the number of cases yearly attended by midwives, but although two midwives subsidised by the Corporation have been placed in districts previously without midwives they find it impossible to get a sufficiently large number of cases so that they might supplement their subsidy, and one of them resigned. This proves that the work is done by a limited number of midwives and some of these have very large practices. These women have long been established in their respective districts and are well known to the inhabitants, hence the difficulty that newcomers have to contend with.

Inspections.—134 visits were paid to certified midwives at their homes in order to inspect the bags of appliances and to see that they keep satisfactory records of their work; also to investigate any case of ophthalmia neonatorum, of septicæmia, or any other abnormality occurring in their practices. The results were generally satisfactory, the midwives being always willing to be instructed, and to seek advice in any difficulty. In addition to the visits to certified midwives 16 visits were paid to handy women. These women are still active, and most interfering if the slightest opportunity arises, and are greatly resented by the practising midwives. On investigation it was found that an emergency had occurred in most of the cases at which they had officiated, but one of these women was reported to the Medical Officer of Health and severely censured.

Births Attended by Midwives.—2,598 live births and 61 still births have been attended by midwives during the year, this being a decrease of 2 in former, and 9 in latter, as compared with the figures for 1917. Midwives attended about 40 per cent. of the total births of the City, the same percentage as the previous year. This is less than half the proportion attended by midwives in the country as a whole.

Lectures to Midwives.—40 weekly meetings for practising midwives were held at the office of the Inspector of Midwives. These meetings consist of talks and discussions in midwifery work in general, and on any particular cases that may occur in the midwife's practices. They create a harmonious spirit between the midwives and the Health Department. Special efforts have been made to make the midwives realise their important part in ante-natal work by giving good and suitable advice to their expectant cases and by visiting them to see that conditions as hygienic as possible exist for the expected confinement.

There is close co-operation between the Health Department and the Maternity Hospital. Pupil midwives in their latter months of training attend the centres of the Mothers' and Babies' Welcome Society, and do district visiting with the Health Visitors.

Notices to the Local Supervising Authority from midwives who sent for medical help. The following are the details :—

FOR MOTHER	
During Pregnancy—	
Varicose Veins	1
Kidney Trouble	1
Ante partum Hemorrhage	4
Abortion	2
	8
During Labour—	
Uterine Inertia	23
Contracted Pelvis	4
Malpresentation	16
Retained Placenta	6
Placenta Prævia	2
P.P Hæmorrhage	6
Ruptured Perineum	17
Syncope of Mother	2
	76
During Puerperium—	
Rise of Temperature	11
Chest affections	7
Eclampsia	2
	20

FOR CHILD	
Immaturity	11
Prematurity	33
Cyanosis	7
Congenital Defects	6
Convulsions	6
Oph. Neonatorum	12
Illness of Baby	2
	77
Total	181

This makes a total of 181 instances, an increase of 2 on the number for 1917. This is only 6.6 per cent. of the total cases. The average for the country is about 12 per cent.

Only in a very small number of cases was payment claimed by the doctors called in from the Health Department. In each case investigations as to the financial circumstances of the patient was made by the Superintendent of Midwives.

Death of Child before Doctor's Arrival.—In the case of 3 confinements attended by midwives the babies, born in a very weak condition, died before medical help could be obtained—inquests were held and the midwives attended at them.

Puerperal Septicæmia.—10 Cases of puerperal septicæmia were notified. They were attended by the following: doctors 4, midwives 2, Union Hospital 2, Maternity Hospital 1, handy woman 1.

Ophthalmia Neonatorum.—19 cases were notified and 4 were found by Health Visitors that had not been previously notified. A total of 60 visits were paid to these cases. Two of these cases were removed to hospital, and 1 died, the remaining number recovered without any permanent injury to the eyes. Doctors attended 10 of the notified cases at birth, midwives 8, and Maternity Hospital 1.

Maternity and Child Welfare Centres.—There are still only 7 centres of the Mothers' and Babies' Welcome Society, but it is hoped to open, early in 1919, two other centres, one in Mill Lane district and the other in St. Peter's. It has only been possible for a doctor to attend each of the centres once fortnightly, but a Health Visitor attends weekly, weighs the babies, advises the mothers when the doctor is not present, and gives a health talk on some simple but important detail in the care, feeding and clothing of the children and the hygiene of the home. The attendances at some of the centres are not as good as they might be ; at others they are remarkably good, particularly at Benwell.

Generally, there has been a considerable increase during 1918 in the number of children under 1 year who have attended, though a decrease in the number over 1 year. The total attendance of expectant mothers at the 7 centres was 148, as compared with 75 in 1917 ; of children under 1 year 3,396, as compared wit 2,784 in 1917 ; of children over 1 year and under 5, 1,417, as compared with 2,666 in 1917. Owing to the fact that the centres were closed for several weeks during the influenza epidemic (Nov.-Dec.) the attendances are much lower than they otherwise would have been.

The total number of individual children under 1 year who attended was 470, and of those over 1 year 275 ; this just gives each child an average yearly attendance of 7 times.

233 Health Talks were given by the Health Visitors at the 7 centres.

Notification of Births.—4,469 births were notified out of a total of 6,555 registered, or 68 per cent.

The following table shows from whom these notifications have been received :—

	LIVING BIRTHS.	STILL BIRTHS.
Medical Practitioners	1037	33
Midwives	2598	61
Maternity Hospital	731	49
Union Hospital	90	4
Parents	13	..
	4,469	147

Still-Births.—Of the total notifications received under the Act still-births have been in the following proportions :—1909, 4.1% ; 1910, 3.9% ; 1911, 4.1% ; 1912, 3.2% ; 1913, 3.4% ; 1914, 3.6% ; 1915, 3.4% ; 1916. 3.6% ; 1917, 3.1% ; and 1918, 3.3%.

The following are the details of the 61 still-births attended by midwives :—

Duration of Pregnancy.—Under 7 months, 1 ; At 7 months, 16 ; to 8 months, 6 ; at 9 months, 38 ; total 61.

Presentation.—Vertex, 36 ; breech, 8 ; footling, 12 ; funis, 5 ; total 61.

Supposed Cause of Still-Births.—Health of mother, 15 ; work, 12 ; abnormal presentation and difficult labours, 27 ; accidental, 4 ; unknown, 3. ; total, 61.

In 8 cases this was the 1st child ; in 8 cases the 2nd ; in 9 cases the 3rd ; in 2 cases the 4th ; in 7 cases the 5th ; in 5 cases the 6th ; and in 12 cases more than the 6th.

This was the 1st still-born child in 34 cases ; the 2nd in 12 cases ; the 3rd in 8 cases ; the 4th in 1 case ; the 5th or more in 6 cases ; total, 61.

Occupation of Mother.—13, or 21 per cent., of the mothers who had still-born children had worked previous to birth of child.

Work of Health Visitors.—There have been 11 Health Visitors doing the district home visiting of babies in the 19 wards of the City during 1918. Each Health Visitor visits and re-visits systematically the births allotted to her, re-visiting as frequently as possible until the child is one year old, and then continuing to visit the same child at less frequent intervals until it attains the age of 5 years. In addition, 7 of the Health Visitors attend the Welcomes situated in their districts.

Measles, influenza, pneumonia and diarrhœa cases are also visited and re-visited by the Health Visitors.

During 1918 5,253 births were visited, and a total of 23,422 re-visits were paid to these births ; 4,776 visits were also paid to children over 1 year ; 477 visits were paid to expectant mothers ; 439 to cases notified as attending the Royal Victoria Infirmary and requiring home attention, and 1,203 special visits, in all 42,683 infant visits were paid. 1,389 primary visits, and 1,504 subsequent visits were paid to measles cases.

As Diarrhœa was not notifiable during 1918 there are no figures of the visits paid to such cases, but they are included in the total numbers of re-visits to children.

Milk.—Free dried milk. **Glaxo and Cow and Gate.** The good results obtained from the distribution of free milk to needy and necessitous cases still continues, and many poor children who otherwise must have fared very badly have been successfully reared on it. Every case in which free milk has been granted is thoroughly investigated by the Health Visitor for the district before it is given, and is then only continued until such time as the parents are in a position to buy it. Many of the recipients are children whose fathers are dead, or very delicate, and so unable to earn sufficient money, illegitimate children, or members of a very large family, where the wages are small. Seven lots of twins have been supplied and all have done very well. An average of 84 cases have been supplied free each month with dried milk, and a total of 6,730 lbs. have been given away.

In addition, dried milk is sold at a much reduced rate from the Health Department to mothers, either for themselves in order to increase their supply of breast milk, or for children who must be wholly or partially artificially fed. Only mothers who are visited by the Health Visitors and are found to be unable to pay the full price are allowed to buy at the reduced rate. An average number of 687 persons monthly bought dried milk, and a total of 45,647 lbs. were sold. This sale is increasing, e.g., in January 1918 only 874 lbs. were sold, and in December, 6,912 lbs.

5,039 infants were born in 1917, and on the visiting list of the Department were due to attain the age of 12 months in 1918. Of these, 363 were lost sight of—this includes 258 who left the City—and 105 who had removed and could not be traced ; in addition 79 were only visited once as the homes were found to be such as did not require subsequent visits. 587 died, which gives a mortality rate of 116 per 1,000 as compared with 107 for the whole City.

Housing Conditions.—607 births occurred on one-roomed dwellings and of these 90 died, a mortality rate of 148 per 1,000. 2,018 births in 2-roomed dwellings, and of these 270 died, a mortality rate of 133 per 1,000.

1,285 births in 3-roomed dwellings, and of these 144 died, a mortality rate of 112 per 1,000 ; and 766 births in houses of more than 3 rooms and of these 83 died, a mortality rate of 108 per 1,000.

During the 11 years 1908-1918 27,658 births were under the observation of the Health Visitors and of these 3,396 died, a death-rate of 122.8 per 1,000, the average for all births in the City during the same period being 123.7.

The following is the analysis :—

Year.	Living at							
	1 Room.		2 Rooms.		3 Rooms.		4 Rooms.	
	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
1908*	247	32	515	57	312	32	13	2
1909	339	53	694	86	168	32	29	3
1910	536	62	723	68	51	4	7	2
1911	462	68	794	79	77	6	20	1
1912	465	48	746	60	110	6	25	1
1913	241	40	348	28	91	3	17	3
1914	245	36	375	31	90	11	25	3
1915	631	104	2,140	306	1,416	144	692	74
1916	611	121	2,333	343	1,584	180	756	85
1917	730	104	2,199	284	1,349	150	776	84
1918	607	90	2,018	270	1,285	144	766	83
11 Yrs.	5,114	758	12,885	1,612	6,533	712	3,126	341
Death rate per 1,000	148.2		125.1		108.9		109.0	

* The Notification of Births Act came into force on the 1st April.

The cleanliness of the 4,676 homes visited was as follows :—

Good	—	3,364 or 71.94 %.
Fair	—	1,077 or 23.04 %.
Dirty	—	235 or 5.02 %.

Parental Employment.—

	At Home.	Working.
Before confinement	4,272	404 or 8.6 %
After Confinement	4,308	368 or 7.8 %

There is only a slight increase in the number of women working before confinement on last year's figures.

Of the total of 404 mothers who worked before confinement 84 lost their babies during the first year of life, and of these deaths 32 per cent. were due to prematurity.

Deaths.—587 children died during the first year of their life. The following table shows how many mothers of these children had lost previous children :—

In 54% of the cases this was the 1st death in the family ; in 20% the 2nd death ; in 13% the 3rd death ; in 6% the 4th death ; in 7 % the 5th or more.

Health of Mothers.—At time of confinement it was:

Good in	3,727 cases, or	79.7%
Fair in	674 cases,	14.5 %
Bad in	275 cases, or	5.8 %

Of these, 24 mothers died during the year, and the cause of death in 83 per cent. was influenza.

The Feeding of the 4,676 children under observation was as follows:—

	Breast.	Mixed.	Artificial.
Children who survived 1st year feeding in 1st month	89.4	6.2	4.4
Children who died in 1st year feeding in 1st month	80.2	7.6	11.2
Children who survived 1st year feeding at 9 months	7.63	61.12	31.25
62 children died from gastritis feeding at time of death..	38.7	25.9	35.4

The percentage of births breast-fed at birth has again increased in the figures for 1916-17, it being 88·7 in 1917, and the number of totally artificially fed children at 9 months is practically the same as in 1917, 31·54. Hence, there has been no increase in the number of artificially-fed children in spite of the fact that a larger number of women have been obliged to work outside their own homes.

Deaths among Notified and Unnotified Births.—64 per cent. of the deaths were notified births, the remainder unnotified.

Illegitimacy.—While the infantile death-rate for the whole City was 107 per 1,000 the rate among the illegitimate children was 231.27 per 1,000

Sex.—The death-rate among male children was 126 per 1,000, and among female 94 per 1,000.

I am, Sir,
Your obedient servant,
Georgina B. Cameron,
Chief Health Visitor and
Superintendent of Midwives.

Health Department,
Town Hall,
Newcastle-upon-Tyne.

MATERNITY AND CHILD WELFARE WORK IN NEWCASTLE UPON TYNE

BY

HAROLD KERR, M.D., D.P.H., Medical Officer of Health, Newcastle upon Tyne.

INFANT mortality first began to attract close attention in the late nineties of last century, when serious alarm was created by its steady increase. In England and Wales the rate fell from 154 deaths per 1,000 births in the decennium 1861-70 to 142 in 1881-90. By 1899, however, it was 163, and in certain of the Lancashire towns it had reached the appalling figure of 273. Meanwhile in Newcastle there had been a downward tendency towards the eighties, but in the nineties a return to higher figures was experienced, and the culmination was reached in 1899 with the high rate of 193 infant deaths per 1,000 births.

The birth-rate at the same time gave little cause for satisfaction. To take Newcastle alone, which in common with Northumberland and Durham generally, had long boasted a large yield of babies, the rate began to fall from something over 40 per 1,000 population, in the latter half of the seventies, reaching 32 in 1894, and rising slightly to 34·2 (the highest since) in 1899. In 1917 it was only 23·4.

The first step to cope with the danger locally was the appointment in Newcastle in 1901 of two female sanitary inspectors, holding the certificate of the Royal Sanitary Institute, and three years later their number was increased to four.

Then with the advent of the Midwives Act, which became effective in April, 1905, a superintendent of midwives was appointed and in 1906, two more women were appointed to advise and assist poor mothers in the feeding and upbringing of their children.

The staff has now increased to twelve women, with a clerk and an office girl. The chief health visitor, who is also superintendent of midwives, ranks as head of her own section of the department, reporting directly to the medical officer of health; she is a "general" trained nurse, with "fever" experience, and holds the Central Midwives' Board and Royal Sanitary Institute (Health Visitors') certificates. Five of the officers are trained nurses, and all but one, who was appointed twelve years ago, hold the C.M.B. certificate. Occasionally an appointment has been made of a woman who did not possess the Institute's certificate for sanitary inspectors or health visitors, but only on condition that this was obtained at the earliest opportunity. The C.M.B. certificate is regarded as an essential, as it is not feasible for it to be obtained after the duties of a health visitor have been entered upon.

In addition to these, there are four tuberculosis visiting nurses directly responsible to the tuberculosis medical officer alone, working from the dispensary, and not from the Town Hall.

So much for the personnel of the Health Department. But in the meanwhile there sprang into existence another invaluable agency in the fight for the babies. This was the Mothers' and Babies' Welcome Society, which, starting from small beginnings in 1907, from the devoted efforts of a little band of indefatigable volunteers, now possesses seven centres, including three for maternity welfare, in various parts of the city. The movement was started primarily with the object of providing cheap nourishing meals for poor women during their later months of pregnancy and the lactation period, at a time when there was great poverty through industrial strikes. Dinners which cost about 1½d. were provided at 1d., to avoid any semblance of charity, and very excellent dinners they were. No food was allowed to be carried home, for it was the mother and baby, born or unborn, that it was intended to help, and mothers with babies had to bring the infants with them. Baby weighing was instituted, and opportunity was taken to teach the women sewing, knitting, artisan cookery, and elementary hygiene for the home, and the mothers made sets of garments for their babies, and for their elder children and themselves as well. They also made simple and inexpensive accouchement sets which added greatly to their comfort in confinement.

When times became more prosperous the dinners were stopped, and ever since then the committee has acted upon the princple that the mothers should be induced to attend, not for material gain, but for educative purposes. At one of the Welcomes there is a meeting on five afternoons a week, at the others meetings are held from one to three times weekly, and the useful side of the function is cheered by a cup of tea. Milk is provided for any children, up to five years of age, whom the mothers may bring with them, and to whom, as well as to the babies, the care of the Welcomes is extended. The attendances vary from about fifteen to fifty. Useful competitions in the practical subjects taught have been held, and these excited great interest among the mothers, and keen efforts to win the prizes offered. On one occasion a gigantic exhibition of babies and of nursery appliances took place. It was a huge success and created considerable interest in welfare work, but the labour and responsibility of organisation were deterrent to a repetition of the experiment.

The health visitors take a prominent part in the conduct of the Welcomes, each centreing the work of her district on the nearest, sending mothers to it, and meeting them there at the weighing and health talks. Normally two doctors visit regularly at each, one for the babies, the other, a lady, for the maternity welfare side. Only the latter is available at present, however, and she visits each Welcome once a fortnight. Only advice is given, or occasionally a little special nourishment; cases requiring treatment are referred to the various hospitals and institutions, with which there is an arrangement for close co-operation. One difficulty that is not easy to surmount is that the very poorest do not come as one would like. For one thing they are not quite so amenable to instruction, for another they have a feeling of shyness at coming among women who are rather better dressed. These have to be seen in their own homes, where in a kindly confidential talk with the health visitor more good is obtainable.

The whole seven centres are run for as small a sum as £750 per annum, towards which the Corporation contributes £250, the Local Government Board paying one-half of the remainder. The Society has its centres in Barrack Road, Wharncliffe Street, Buddle Road, Spital Tongues, City Road, Shieldfield, and Byker, and desires to open two others in St. Peters and in Mill Lane, where they are much needed, at a cost of £100 each.

Besides the Welcome Society there are two other voluntary associations, also closely co-operating with the Health Department, which have day nurseries for the reception of the children of working women. While the principle of the crêche system is contrary to the national interests, these particular institutions are serving a useful purpose at the present time, and every opportunity is taken of influencing the mothers for the good of their children. The Corporation makes a grant of £50 per annum to each.

Of the other institutions which are closely linked up in the combined scheme, first and foremost comes the Maternity Hospital; there are also the Royal Victoria Infirmary, the Children's Hospital, other special hospitals, the Poor Children's Holiday Association, and the Visitors of the Guardians (under the Children Act) and of the National Society for the Prevention of Cruelty to Children.

The education authority, in its course of domestic economy, which is attended by sixth and seventh standard girls, teaches baby care, so that some attempt, however slight, is being made to prepare girls for maternal duties; but this work might be extended considerably with profit.

In endeavouring to estimate the effect of all this endeavour, let us look at the causes of infant mortality.

First, we notice that more than half the deaths under one year of age occur in the first three months of life, and about three-fourths of these under one month. It is therefore to the earliest weeks of life that our closest care must be devoted. Of the deaths under one month prematurity accounts for nearly half; congenital malformations only cause the death of something like one-eighteenth of them. It is regrettable to have to admit that so far we have been able to produce no visible diminution in this heavy drain upon child-life. To meet it it is obvious that vastly increased attention will have to be paid to antenatal conditions, and every possible effort should be made to reach the expectant mother. That this is a matter of delicacy no one can deny, and the difficulty is not to be solved (yet at any rate) by compulsory notification of pregnancy. But very much can be done by the individual influence of the health visitor. Here, indeed, is a test of the efficiency of that officer, and her greatest tact and kindliness will have to be exercised to obtain the confidence of the women in her district. The day, and methods, of the "lady inspector" are long gone by, and it is upon the attitude of sympathetic friend, and not of official or condescending patroness, that she must found her hopes of success. Upon the personality of each individual member of the staff far more depends than upon any number of high qualifications of which she may be the proud possessor. To do her credit, the health visitor of to-day realises this, and there is little fault to be found with her, either in earnestness, zeal, or real sympathy with her less fortunate sisters. The maternity centres have also a great opportunity before them, and if tactfully managed should prove invaluable when worked in intimate conjunction with the health visitor.

Additional help was provided recently for lying-in women by the introduction of three additional midwives into districts badly provided, and their subsidy by the Corporation.

For some years past the Sanitary Committee has anticipated recent national legislation by paying fees, upon a fixed schedule, to medical practitioners called in, at the instance of midwives, to assist poor women in difficult confinements.

Infant mortality from all causes has shown, in Newcastle, a notable and fairly regular decline since 1899. This is indicated in the average rates for the last four quinquennia as follows: for the period 1896-1900 it was 179; for 1901-05, 155; for 1906-10, 132; for 1911-15, 126; in 1916 it was 123, and in 1917, 113. In 1912 it fell to the low figure of 101; since then there has been a rise, but the circumstances of domestic life have undergone considerable adverse changes, owing to the outbreak and continuance of war.

It follows then that the improvement has occurred in other than the prematurity class, *i.e.*. the post-natal conditions have become progressively more favourable to infant life. Owing to changes in methods of classifying the causes of death, and also to the fact that only for recent years are detailed analyses of infant deaths available, it has not been practicable to obtain comparable figures for the different causes, the chief of which are comprised under the following heads: infantile atrophy, debility, and marasmus; digestive diseases; and respiratory diseases. Whooping cough and measles take no inconsiderable toll in epidemic years. The first three groups are by far the most important.

Infantile atrophy, debility, and marasmus, a vague nomenclature, account for nearly a quarter of the deaths under one month, and more than a fifth of those under one year. Doubtless, unfavourable ante-natal conditions, of which venereal disease of the mother is an important one, account for a large proportion, but many of them are due to malnutrition, through improper or insufficient feeding. Here, the health visitor and the Welcomes can do much. A good deal depends, of course, upon the financial position of the mother, and, among the very poor poverty itself is undoubtedly the sole cause of many such deaths.

Since April, 1917, the Sanitary Committee has been providing free milk or dried milk (latterly entirely dried milk) to poor mothers unable to purchase it for their young children, while dried milk is sold at cost price (slightly over half the retail price) to those mothers, not quite so poor, who cannot pay the full cost. Under this arrangement about four tons of dried milk (equal to about 50,000 pints of fresh milk) is being distributed monthly through the Health Department; of this about one-tenth is given free.

The results have been most gratifying, and while much extra labour falls upon the staff, both this and the expenditure are more than justified.

The provision of cheap and nourishing dinners for pregnant and nursing mothers is a worthy subject for benevolent consideration where real need exists, but only under such safeguards as will exclude the non-necessitous. Breast feeding should be urged, and wherever possible, made a condition of assistance to the mother.

It is because of the difficulty in carrying out breast feeding that the employment of nursing mothers is to be deprecated strongly, and hence the objection, on principle, to the crêche system, unless under very exceptional circumstances. Unfortunately, this is rather a counsel of perfection at the present time.

The deaths from respiratory and digestive diseases are undoubtedly decreasing. This is encouraging, as indicating wiser management by the mothers, and it is surely fair to presume that it is an effect of the various concerted efforts to instil right principles. There is no question that, with all the climatic and other conditions favouring the spread of summer diarrhœa, our bad years are now not so costly in life as they used to be. It is hardly fair to judge by such a year as 1914, which was a severe one, for the diarrhœa season synchronised with tremendous social disturbance due to mobilisation, influx of munition workers, and considerable interference with public services, including that of cleansing and scavenging.

In regard to the diarrhœal diseases, general sanitation plays a highly important part, as does food inspection, and their maintenance at a high standard means the active co-operation of the sanitary inspector, and the constant stimulation of the sanitary conscience of the people. A striking example of this is given in the Weekly Bulletin of the Department of Health of the City of New York for September 30th, 1916. The city suffered an excessive mortality in that year from influenza (2,000 deaths), and poliomyelitis (2,000 deaths), and yet the number of deaths from all causes per 1,000 population was only very slightly higher in 1916 than in the corresponding period of 1915, while the death-rate of infants under one year was considerably lower than in the same time in 1915 (95 per 1,000 births as against 105) although 10 per cent. of the poliomyelitis deaths were those of infants. The explanation is that, chiefly owing to the scare induced by the poliomyelitis epidemic, coupled with a publicity and education campaign, never before was there such a clean up in the city. Children, houses, tenements, backyards, food, were looked after in a way that had never been seen previously, and everyone did his or her best to keep house and premises free from anything that could harbour disease germs. The most notable effect of all was the great decrease in deaths from infantile diarrhœa, which, in the fourteen weeks, June 24th to September 23rd, 1916, amounted to no less than 624 fewer than in the corresponding period of the previous year, although the climatic conditions of the two periods were strictly comparable.

Diseased or dirty milk is the cause of much suffering and many deaths; tubercle-infected milk is especially dangerous, though its effects are not so evident in the first year of life. There is a crying need for the Milk and Dairies (Consolidation) Act, at present in suspension, and for the Tuberculosis Orders to come into force again, with insistence by the Local Government Board that they shall be administered with thoroughness in every local area. Further, these measures should be controlled by the Ministry of Health, and not by the Board of Agriculture.

Both the digestive and the respiratory group of ailments are dependent, for a low incidence, mainly upon good sanitation and education, and in obtaining these desiderata, there must be close co-operation between the sanitary inspector and the child-welfare staff.

The housing question is one of the most vital of all to the health of the children. No more emphatic evidence of this could be quoted than that furnished in Newcastle, a notoriously crowded city at the best of times. and exceedingly bad just now. During the ten years 1908-17 there were 23,000 births under observation by the health visitors. Of those born in the single-room homes the mortality was 148 per 1,000 births; in the two-room holdings 122, and in the three-room 108. Or contrast a well-to-do ward, with few houses to the acre, and the dwellings comfortable and spacious, with a poor ward full of overcrowded houses, and these overcrowded on area. In Dene ward the infant mortality rate was 45 in 1917, but in All Saints' ward it was 150.

Whooping cough has not yet been made notifiable, though the health visitors do what they can to teach mothers how to prevent spread from such cases as they come across. But measles is now compulsorily notifiable, and the results have already been most encouraging. Measles cases are visited, investigated, and followed up by the health visitors, and it is found that the very fact that it receives official attention suffices to make mothers regard the disease much more seriously than one frequently found before, and it is unusual for the patient not to be found in bed when the health visitor arrives. Also it would seem to be much more usual now to call in a doctor. Emphasis is laid by the health visitor on the need for proper separation and nursing of the patient, precaution against exposure during the febrile period and early convalescence, and the importance of the care of the mouth and nose, to prevent accumulation of foul material that may set up the highly dangerous septic broncho-pneumonia that is the chief immediate cause of death in measles. Parents are instructed as to recognition of early symptoms, and unnotified causative or consequent cases are searched for.

All the babies on the health visitors' lists are now being visited until they reach the age of two years, and it is highly desirable that they should all be kept under observation until they attain school age. This principle, as mentioned above, is also followed at the Welcomes.

The Notification of Births Act involves a reduplication of birth registration, which is confusing and unnecessary. The desired effect might have been more easily obtained by simply shortening the time of registration, and obtaining daily lists from the registrars. Were the Registration Acts carried out by officers of the Health Department, as in our Colonies and in America, instead of by by registrars locally appointed and paid by the Guardians, the matter would be simpler still, and many other advantages would be gained. Among cases that it is highly desirable to reach are those in which still-births have occurred. A much stronger effort must be made to obtain notification of these, for the three to four per cent. of all births that they now represent in our returns certainly do not cover their numbers. Many, doubtless, are due to the use of abortifacients, and if this practice is to be controlled, it will have to made illegal to bury the body of a new-born or premature infant without notification and full inquiry into the circumstances.

Maternity and child welfare work is a comparatively new departure, but there is no question as to its vital importance to the nation, and as to the close attention that will have to be paid to it in the future.

The special needs of the City not as yet provided for are:—

i. Additional Health Visitors.

ii. Maternity beds for the following classes of patients:—

  (a) the unmarried or homeless mother who has suffered misfortune;

  (b) the married woman whose home does not afford the facilities for a safe or comfortable confinement;

  (c) abnormal or complicated cases of all classes.

iii. Hostel accommodation for expectant and nursing mothers who are unmarried or homeless.

iv. Home-helps for lying-in women without domestic assistance.

v. Day Nursery accommodation for ailing or wasting children ("non-thrivers") who cannot be looked after at home.

vi. Absorption and extension of the Welfare Centres of the Mothers' and Babies' Welcome Society on their present lines.

vii. Establishment of Ante-Natal, Dental, and Infant Clinics, either in connection with the Welfare Centres, or as separate establishments. It should be considered whether co-operation could not be effected with the Medical Department of the Education Authority.

viii. Beds at the Children's Hospital or at the Royal Victoria Infirmary for acute cases sent direct from the clinics.

ix. A Convalescent Home in the country for delicate mothers and young children.

x. A whole-time female Medical Officer to supervise immediately the combined scheme under the Medical Officer of Health,

REPORTS OF THE
RESIDENT MEDICAL OFFICER OF THE
INFECTIOUS DISEASES HOSPITAL
AND THE TUBERCULOSIS OFFICER.

III.—INFECTIOUS DISEASE.

FEVERS, FOOD POISONING,
CITY HOSPITAL FOR INFECTIOUS DISEASES,
TUBERCULOSIS, DISINFECTION, BACTERIOLOGY.

INFECTIOUS DISEASES.

NUMBER OF CASES PER 1,000 POPULATION IN 1918.

DISTRICT.	ATTACK-RATE PER 1,000 POPULATION.						
	Small-pox	Typhus	Scarlet Fever	Diphtheria	Enteric Fever and Continued Fever	Puerperal Fever	Erysipelas
England and Wales ..	0.00	0.00	1.44	1.31	0.13	0.04	0.37
82 County Boroughs ..	0.00	0.00	1.73	1.28	0.10	0.05	0.42
Newcastle upon Tyne ..	..	..	**1.53**	**0.90**	**0.10**	**0.04**	**0.40**
Hull	..	..	0.01	0.12	0.05	0.02	0.00
Leeds	..	..	1.33	1.27	0.10	0.04	0.41
Bradford	..	..	0.76	1.08	0.12	0.05	0.44
Sheffield	..	..	3.1	1.3	0.1	0.1	0.5
Manchester	..	..	1.01	0.67	0.09	0.09	0.32
Salford	..	..	1.3	0.7	0.2	0.1	0.4
Liverpool	..	0.003	3.86	1.91	0.08	0.03	0.58
Nottingham	0.00	..	0.823	1.52	0.063	0.038	0.48
Leicester	0.00	0.00	2.6	0.7	0.1	0.02	0.4
Stoke-on-Trent ..	..	..	1.20	2.43	0.1	0.04	0.53
Birmingham	..	..	1.19	1.02	0.03	0.11	0.40
Cardiff	..	..	2.31	1.43	0.10	0.01	0.40
Bristol	0.0	0.0	0.82	1.24	0.02	0.006	0.41
Portsmouth	..	..	1.76	2.61	0.15	0.05	0.27
London	0.005	..	1.72	1.91	0.08	0.46	0.03
Gateshead	..	..	1.11	0.73	0.05	..	0.29
South Shields	..	..	0.72	0.25	0.12	..	0.26
Tynemouth	..	..	0.87	0.52	0.37	0.01	0.59
Sunderland	0.00	0.00	2.74	0.37	0.03	0.02	0.43
Middlesborough ..	..	..	1.22	1.26	0.12	0.04	0.28
†Cnty. of Northumberland	..	..	1.59	1.14	0.79	0.017	0.43
†County of Durham ..	..	..	2.5	1.1	0.19	0.02	0.35

† Administrative County.

DEATHS (CORRECTED) FROM NOTIFIABLE INFECTIOUS DISEASES AND NON-NOTIFIABLE ZYMOTIC DISEASES, EXCLUSIVE OF TUBERCULOSIS.

WARD.	Small-pox	Typus Fever	Enteric Fever	Polio-myelitis	Cere-bro-Spinal Fever	Puer-peral Fever	Scarlet Fever	Diph-theria	Ery-sipelas	Measles	Whooping Cough	Zymotic Diarrhœa (under 2 years of age)
St. Nicholas'	..	..	..	..	..	..	..	..	..	..	..	..
*St. Thomas	..	..	..	..	1	..	..	..	1	..	4	2
St. John's	..	..	..	..	..	..	..	1	..	6	9	7
Stephenson	..	..	..	..	1	1	..	1	..	2	15	6
Armstrong	..	..	2	..	..	1	..	3	1	3	10	5
Elswick	..	..	..	..	..	..	1	1	..	2	..	1
Westgate	..	..	..	..	1	1	1	..	1	1	7	2
†Arthur's Hill	..	..	..	..	..	..	..	1	..	1	2	3
Benwell	..	..	..	..	1	..	2	1	1	1	14	6
Fenham	..	..	..	..	1	..	..	..	..	1	3	8
All Saints'	..	..	..	..	..	1	..	1	..	3	16	6
St. Andrew's	..	..	..	..	..	..	..	..	..	1	5	4
Jesmond	..	..	..	..	..	..	2	1	..	..	1	1
Dene	..	..	..	..	1	..	2	4	..	..	..	..
Heaton	..	..	..	..	..	..	..	1	..	..	4	3
Byker	..	..	..	..	..	..	1	3	..	5	4	8
St. Lawrence	..	..	..	..	..	..	..	2	..	3	15	10
St. Anthony's	..	..	..	..	..	1	2	2	..	2	4	8
‡Walker	..	..	..	..	..	..	..	1	..	2	6	3
City	..	..	2	..	6	5	11	23	4	33	119	83

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children.
† Includes Union Workhouse. ‡ Includes City Hospital for Infectious Diseases.

For Particulars of Deaths from **Tuberculosis** see page 110.

NOTIFIED CASES OF INFECTIOUS DISEASE, EXCLUSIVE OF TUBERCULOSIS.

AGES OF CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1918. (TABLE II. OF LOCAL GOVERNMENT BOARD RETURNS).

NOTIFIABLE DISEASE.	At Ages—Years.								Total (All Ages).	
	Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and upward	Age not known.	1918.	1917.
Diphtheria (including Membranous Croup)	3	69	122	33	20	1	..	2	250	226
Erysipelas	2	3	7	9	34	34	7	6	102	118
Scarlet Fever	..	101	262	46	16	..	..	1	426	452
Typhus Fever ..	..	..	..	..	..	..	..	..	..	..
Enteric Fever.. ..	..	..	11	13	4	1	..	..	29	25
Puerperal Septicæmia	..	..	..	1	9	..	..	..	10	5
Epidemic Cerebro-Spinal Meningitis ..	1	5	3	5	2	..	..	..	16	32
Ophthalmia Neonatorum	19	..	..	..	..	..	..	..	19	51
Acute Poliomyelitis ..	..	..	..	..	..	..	..	..	..	2
Chicken Pox	..	..	..	..	..	..	..	..	..	..
Measles and Rubella..	104	810	648	35	20	2	..	41	1,660	4,561
TOTALS	129	988	1053	142	105	38	7	50	2,512	5,472

WARD DISTRIBUTION OF INFECTIOUS DISEASES.

(TABLE II. OF LOCAL GOVERNMENT BOARD RETURNS).

WARD.	Small-pox.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Poliomyelitis.	Cerebro Spinal Fever.	Puerperal Fever.	Diphtheria.	Erysipelas.	Ophthalmia Neonatorum.	Measles.	Rubella.	TOTAL.
St. Nicholas'	Nil.	..	Nil.	..	Nil.	..	..	2	1	..	29	..	32
St. Thomas'		37		9		6	..	26	6	..	45	8	137
St. John's ..		12		1		..	..	10	3	4	201	9	240
Stephenson .		28		..		1	..	11	4	2	97	..	143
Armstrong ..		14		8		..	2	8	3	..	141	1	177
Elswick ..		10		3		..	..	15	3	1	62	3	97
Westgate ..		25		..		2	..	5	5	3	48	3	91
Arthur's Hill		17		..		..	3	4	6	..	51	6	87
Benwell ..		31		..		2	2	12	14	2	170	..	233
Fenham ..		12		1		2	..	13	4	..	146	1	179
All Saints' ..		19		..		1	2	11	5	..	57	..	95
St. Andrew's		9		..		1	1	4	4	..	31	1	51
Jesmond ..		22		3		1	..	10	1	..	44	6	87
Dene ..		34		1		..	..	13	4	..	74	5	131
Heaton ..		26		1		..	..	22	4	..	54	1	108
Byker ..		42		..		..	..	27	8	1	81	..	159
St. Lawrence		41		2		..	..	30	10	4	127	..	214
St. Anthony's		24		..		..	..	5	6	1	57	1	94
Walker ..		23		..		..	..	22	11	1	93	7	157
City ..		426		29		16	10	250	102	19	1,608	52	2,512

For particulars of cases of **Tuberculosis** see special section, pp. 99, 100, & 110.

WARD INCIDENCE OF INFECTIOUS DISEASES.

EXCLUSIVE OF TUBERCULOSIS.

WARD.	NOTIFIABLE DISEASES. Cases per 1,000 Population.											DEATHS per 1,000 Population.		
	Small-pox.	Typhus Fever.	Enteric Fever.	Polio-myelitis	Cerebro-Spinal Fever.	Puerperal Fever.	Scarlet Fever.	Diph-theria.	Ery-sipelas.	Measles (including Rubella).	Oph-thalmia Neona-torum	Measles	Whooping Cough.	Zymotic Diarrhœa (under 2 years of age).
St. Nicholas'	Nil.	Nil.	..	Nil.	..	..	..	0.55	0.27	7.93	..	..	..	..
*St. Thomas'			0.26		0.42	..	2.56	1.80	0.42	3.67	..	..	0.28	0.14
St. John's			0.06		..	..	0.76	0.64	0.19	13.45	0.25	0.38	0.57	0.45
Stephenson			..		0.05	..	1.46	0.57	0.21	5.05	0.10	0.10	0.78	0.31
Armstrong			0.50		..	0.12	0.87	0.50	0.19	8.87	..	0.19	0.62	0.31
Elswick			0.23		..	..	0.80	1.16	0.23	5.02	0.08	0.15	..	0.08
Westgate			..		0.13	..	1.60	0.32	0.32	3.26	0.19	0.06	0.45	0.13
†Arthur's Hill			..		..	0.26	1.45	0.34	0.51	4.90	..	0.08	0.70	0.26
Benwell			..		0.11	0.11	1.72	0.67	0.78	9.44	0.11	0.06	0.78	0.33
Fenham			0.09		0.18	..	1.06	1.15	0.35	13.00	..	0.09	0.27	0.70
All Saints'			..		0.06	0.11	1.05	0.60	0.28	3.14	..	0.17	0.88	0.33
St. Andrew's			..		0.08	0.08	0.70	0.31	0.31	2.50	..	0.08	0.40	0.31
Jesmond			0.26		0.09	..	1.94	0.90	0.09	4.42	..	..	0.09	0.09
Dene			0.08		..	..	2.72	1.04	0.32	6.33	..	..	..	..
Heaton			0.06		..	..	1.64	1.38	0.25	3.46	..	..	0.25	0.19
Byker			..		..	..	2.65	1.50	0.45	4.52	0.06	0.28	0.22	0.45
St. Lawrence			0.11		..	..	2.24	1.64	0.55	6.92	0.22	0.16	0.82	0.55
St. Anthony's			..		..	..	1.48	0.30	0.37	3.59	0.06	0.12	0.25	0.49
‡Walker			..		..	..	1.40	1.34	0.70	6.07	0.06	0.12	0.36	0.18
City	..	..	0.10	..	0.06	0.04	1.53	0.90	0.37	5.97	0.07	0.12	0.43	0.30

* Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children, † Includes Union Workhouse.
‡ Includes City Hospital for Infectious Diseases, Walker Gate

For particulars of **Tuberculosis** see table on page 110.

HOUSEHOLDS AFFECTED WITH INFECTIOUS DISEASES, EXCLUSIVE OF TUBERCULOSIS.

DISEASES.	Households with					Military or Naval Cases	Public Institutions *	Total Cases †
	Single Cases	2 Cases each	3 Cases each	4 Cases each	5 Cases each			
Typhus	..	..	..	..	..	..	..	..
Smallpox	..	..	..	..	..	..	..	..
Scarlet Fever ..	299	38	3	3	1	15	10	426
Diphtheria (includ. Membraneous Croup	158	24	3	1	..	14	17	250
Enteric (or Typhoid) Fever	14	1	2	..	..	5	2	29
Erysipelas.. ..	7	..	..	..	..	..	3	10
Puerperal Fever ..	90	1	..	..	..	3	7	102
Epidemic Cerebro Spinal Meningitis	10	..	..	..	..	5	1	16
Poliomyelitis ..	..	..	..	..	..	..	..	..
Ophthalmia Neonatorum	19	..	..	..	..	..	..	19
Total ..	597	64	8	4	1	42	40	852

* See page 67. † Exclusive of Measles and Rubella.

SCHOOLS AND INFECTIOUS DISEASES.—Through the courtesy of the Director of Education and of the Principal Medical Officer to the Education Committee it has been possible to prepare the following statement, shewing the number of households affected with Scarlet Fever and Diphtheria per hundred scholars (calculated upon the average attendances.)

SCARLET FEVER AND DIPHTHERIA IN SCHOOLS.

School.	Per cent. of Households infected with	
	Scarlet Fever.	Diphtheria.
Atkinson Road	0.4	0.3
Bath Lane	0.3	0.3
Bentinck	0.2	0.5
Blenheim Street	0.2	—
Bolam Street	0.9	0.4
Canning Street	0.3	0.3
Chillingham Road	1.2	1.1
Clarence Street	0.2	0.4
Cruddas Park	0.2	—
Diana Street	—	0.7
Delaval	0.5	—
Denton Road	1.2	0.6
Elswick Road	0.9	0.4
Heaton Park Road	0.6	0.9
Mitford Street	0.7	0.1

SCARLET FEVER AND DIPHTHERIA IN SCHOOLS (*continued*).

School.	Per cent. of Households infected with Scarlet Fever.	Diphtheria.
North Heaton	1.0	0.1
North View	1.2	0.5
Ouseburn	0.9	0.6
Raby Street	1.1	0.9
Royal Jubilee	0.5	0.2
Saint Peter's	0.5	0.2
Sandyford Road	1.2	0.3
Shieldfield	0.4	0.4
Snow Street	0.5	0.2
South Benwell	0.2	0.2
Spital Tongues	0.8	—
Todd's Nook	1.6	0.1
Victoria Jubilee	0.4	0.4
Walker East	0.3	0.1
Walker West	0.5	0.4
Walker Gate	1.1	0.8
Welbeck Road	1.9	0.4
Westgate Hill	0.5	0.3
West Jesmond	0.9	0.3
Westmorland Road	0.6	0.5
Wingrove	0.7	0.7

The Medical Officer of Health continues to inform principals of schools of the presence of infectious diseases in the homes of their pupils, as also of the cessation of infection. A daily return of cases in the homes of scholars is also forwarded to the Principal Medical Officer of the Education Committee.

Of the households infected with Scarlet Fever, 295 contained scholars of one or other of the 65 different schools in the City. 11 of the largest elementary schools had scholars from upwards of 10 households each attacked during the year, the largest number of such households connected with any one school being 15.

In three schools there was infection in the households of the scholars during nine months of the year, in one school during eight months, and in four schools during seven months of the year.

School Closure.—On account of influenza prevalence all the elementary schools of the City were closed by the Education Committee between July 8th and August 26th.

Subsequently general closure was carried out by order of the Local Sanitary Authority, from October 25th, immediately on the first re-appearance of influenza, until the end of the year. Careful comparison with six other towns showed that where school closure was effected early, as in Newcastle, the incidence of the disease was substantially lower than in towns where closure was not carried out at all, or only when the epidemic was well established. During this second wave prompt closure was ordered in Newcastle, Tynemouth, and Darlington, and for a week only in Middlesborough. Over the period of the second wave the percentage of deaths in the age period 5 to 15 to total deaths was : Darlington 8 per cent., Tynemouth 10 per cent., Newcastle and Middlesborough 13 per cent. In Stockton, where closure took place about a week later, the 5 to 15 period had 15 per cent. of the deaths, while in South Shields and Sunderland, where closure took place very late, the children of school age suffered to the extent of 19 and 20 per cent. The age period 5 to 15 comprises approximately 21 per cent. of the total population.

PUBLIC INSTITUTIONS AND INFECTIOUS DISEASE.

The following notifications were received during the year :—

INSTITUTIONS, &c.	Scarlet Fever	Enteric Fever	Diphtheria	Erysipelas	Cerebro Spinal Meningitis	Puerperal Fever	TOTAL *
Royal Victoria Infirmary ..	2	2	3	2	..	...	9
Fleming Memorial Hospital, North Road	2	..	4	1	1	..	8
Workhouse	..	..	..	4	..	2	6
City Hospital for Infectious Diseases—(Staff) ..	2	..	1	..	..	..	3
Maternity Hospital.. ..	..	..	..	..	..	1	1
Throat and Ear Hospital ..	4	..	1	..	..	..	5
Newcastle Orphanage ..	..	..	7	..	..	..	7
No. 9 Wharf	..	..	1	..	..	..	1
Total	10	2	17	7	1	3	40

* Does not include any cases belonging to the City which could properly be assigned to their homes elsewhere.

MILK SUPPLY IN RELATION TO INFECTIOUS DISEASES.

The source of the milk supply was ascertained in every case of fever and diphtheria. In no case was there reason to suspect that the milk was responsible for the conveyance of infection.

There were in the City 480 small general shops retailing milk, none of them being a fit place for the purpose. This number has been diminished somewhat by the difficulty experienced by their owners in obtaining their supplies of milk, but there will be no permanent means of regulating them until the end of the suspension of the Milk and Dairies (Consolidation) Act, 1915.

Seventeen cases of Scarlet Fever occurred at public places of various kinds, including two public houses, one hostel, two tobacconists shops, two clubs, three schools, two drapery shops, one greengrocers shop, and three others. Four cases of diphtheria occurred—one at a public house, one at a general dealer's, one at a laundry, and one at offices (caretakers).

SCARLET FEVER.

Notifications of 426 cases were received during the year. being little more than half the previous year's incidence, and there were 11 deaths, which is equivalent to a mortality of 2.6 per cent. The type of disease was mild on the whole.

DIPHTHERIA.

250 cases were notified during the year, and 23 died, a case mortality of 9.2 per cent.

Antitoxin was distributed free to medical practitioners in the City as follows :—

Number of medical practitioners who made application for Antitoxin	31
Number of phials of Antitoxin supplied	141
Number of cases of Diphtheria notified	250
Number of cases of Diphtheria removed to Hospital ..	229
Number of Hospital cases in which Antitoxin was injected prior to admission	65

The fatality of the disease in recent years is shown in the subjoined table :

Year.	Diphtheria Cases. (All forms).	
	Number.	Case Mortality.
1909	546	12.7%
*1910	443	9.0%
1911	507	7.5%
1912	501	6.6%
1913	368	7.6%
1914	362	7.7%
1915	275	9.5%
1916	272	10.3%
1917	226	14.6%
1918	250	9.2%

* Antitoxin first distributed gratis April, 1910.

Particulars of the type of the disease as noted in cases sent to hospital will be found later in the section dealing with the City Hospitals.

MEASLES AND RUBELLA.

1,660 cases (including 52 of Rubella) were notified, and there were 33 deaths (corrected) in 1918, representing a death rate of 0.12 per 1,000 population, as compared with 0.28 in 1917.

Deaths, 1918.

Month.	Years of Age.							Total.
	0-1.	1-2.	2-3.	3-.4	4-5.	5-10.	Over 10	
January ..	..	..	..	..	..	..	..	..
February ..	..	..	..	..	..	..	..	..
March	..	..	..	..	..	..	..	..
April	..	..	..	..	..	..	..	..
May	1	1	..	..	..	..	..	2
June	..	..	1	..	..	1	..	2
July	1	2	4	1	..	..	..	8
August ..	1	3	..	2	..	..	..	6
September ..	..	1	..	..	..	1	..	2
October ..	..	..	1	..	..	..	..	1
November ..	1	4	3	..	1	1	1	11
December ..	1	..	..	..	..	..	..	1
Total ..	5	11	9	3	1	3	1	33

The following table shews the deaths in the various wards, and at different age periods :—

	Under 3 months	3 and under 6 months	6 and under 9 months	9 and under 12 months	1 and under 2 years	2 and under 3 years	3 and under 4 years	4 and under 5 years	5 and under 10 years	Over 10 years	Totals
St. Nicholas'	..	..	..	..	..	..	..	..	..	..	..
St. Thomas'	..	..	..	..	..	..	..	..	..	..	..
St. John's'	..	1	..	1	2	1	..	..	1	..	6
Stephenson	..	..	..	..	..	..	1	1	..	..	2
Armstrong	..	..	..	1	1	1	..	..	..	..	3
Elswick	..	..	..	..	2	..	..	..	..	..	2
Westgate	..	..	..	..	..	1	1	..	..	..	2
Arthur's Hill	..	..	..	..	1	..	..	..	..	..	1
Benwell	..	..	..	..	1	..	..	..	..	..	1
Fenham	..	..	..	..	..	1	..	..	..	..	1
All Saints'	..	..	..	1	1	..	..	..	1	..	3
St. Andrew's	..	..	..	..	1	..	..	..	..	..	1
Jesmond	..	..	..	..	..	..	..	..	..	..	..
Dene	..	..	..	..	..	..	..	..	..	..	..
Heaton	..	..	..	..	..	..	..	..	..	..	..
Byker	..	..	..	..	1	3	1	..	..	..	5
St. Lawrence	..	..	..	1	1	..	..	..	..	1	3
St. Anthony's	..	..	..	..	..	..	..	..	1	..	1
Walker	..	..	..	..	..	2	..	..	..	..	2
	..	1	..	4	11	9	3	1	3	1	33

Each Health Visitor has visited and revisited the cases occurring in her district. By this arrangement the cases, immediately on receipt of the notification, are visited, and advice given regarding the nursing, with particular attention to the cleanliness of the mouth and eyes, the hygiene of the home, and the necessary precautions to prevent subsequent cases and the spread of infection.

Measles Cases Notified during 1918.—

	Civil.		Military.	
Medical Practitioners	1,124	..	23	
Parents, Guardians. etc.	51	..	..	
Schools	25	..	..	
Health Visitors, &c.	385	..	..	
	1,585	..	23	1,608

Rubella Notified.—

Medical Practitioners	45	..	7	52
Total..				1,660

Of the total of civilian cases, 1,389 were visited by the Department. The total cases, including military, occurred in the following wards :—

	Measles.	Rubella.
St. Nicholas	29	..
St. Thomas	45	8
St. John's	201	9
Stephenson	97	..
Armstrong	141	1
Elswick	62	3
Westgate	48	3
Arthur's Hill	51	6
Benwell	170	..
Fenham	146	1
All Saints'	57	..
St. Andrew's	31	1
Jesmond	44	6
Dene	74	5
Heaton	54	1
Byker	81	..
St. Lawrence	127	..
St. Anthony	57	1
Walker	93	7
	1,608	52

The following are the ages of the 1,630 civilian cases :—

Under 1 year	104
From 1 to 5 years	810
From 5 to 15 years	648
From 15 to 25 years	16
From 25 to 45 years	10..
From 45 to 65 years	2
Over 65 years	..
Unknown	40
	1,630

It was found that out of 1,630 civilian cases 1,247 households were affected.

Of the total number notified, 1,389, or 85 per cent., were visited, and 1,504 re-visits were paid to these cases.

The following are the details of the visited cases :—

152 case, or 11% occurred in 1 roomed dwellings.
490 ,, ,, 35% ,, ,, 2 ,, ,,
456 ,, ,, 33% ,, ,, 3 ,, ,,
291 ,, ,, 21% ,, ,, 4 ,, ,,

Isolation.—The isolation of the children suffering was found to be :—

Good in 34% of cases.
Fair in 25% of cases.
And Bad in 41% of cases.

Medical Attendance.—In 79 per cent. of the cases a doctor was found to be in attendance.

Condition of Child.—In 80 per cent. of the cases the disease ran an uncomplicated course ; in 17.5 per cent. bronchitis or pneumonia subsequently developed, and in 32 cases, or 2.5 per cent., the patient died as a result of the complications.

Attendance at Schools.—23 per cent. of the children suffering had previously attended schools, and in 31 per cent. of the cases no one from the affected household had been attending school.

The following are the ages of the children (visited) suffering from measles :—

Under 1 year	107
Under 2 years	201
Under 3 years	193
Under 4 years	221
Under 5 years	164
Under 6 years	225
Over 6 years	278
	1,389

WHOOPING COUGH.

119 deaths occurred from Whooping Cough. The particulars are as follows :—

MONTH.	YEARS OF AGE.						TOTAL.
	0—1	1—2	2—3	3—4	4—5	5—10	
January	5	5	1	..	1	..	12
February	4	5	..	..	..	..	9
March	9	10	5	..	3	1	28
April	5	2	3	..	1	..	11
May	3	7	..	..	..	1	11
June	7	7	..	1	1	1	17
July	4	4	3	..	1	3	15
August	2	3	..	1	..	..	6
September	..	..	..	..	..	..	..
October	..	..	..	..	..	..	..
November	2	2	1	2	1	..	8
December	2	..	..	..	..	..	2
Whole Year ..	43	45	13	4	7	7	119

The death rate in 1918 was equivalent to 0.43 per 1,000 population, as compared with 0.22 in 1917.

ENTERIC FEVER.

29 cases were notified during the year, and there were 2 deaths, giving a death rate of 0.007 per 1,000 population, and a case mortality of 6.9 per cent.

The 29 notified cases occurred as follows :—

Five were naval or military, 2 were in a public institution, and 22 occurred in 17 private households, of which 15 (20 cases) had water closets and 2 (two cases) had dry closets, and the attack rate was 0.39 cases per 1,000 water closet houses, and 0.37 cases per 1,000 dry closet houses.

One outbreak occurred involving two households (tenement property). Infection was probably conveyed by direct communication. Widals of all the contacts were taken and 4 found positive.

No cases of shellfish infection were found in connection with Enteric Fever. One case occurred in a large hotel. One of the employees ate some oysters bought at a large fishmonger's shop in the City. Enquiries were made as to their supply, and proved satisfactory.

DIARRHŒA.

There were in all 123 deaths from the disease, equal to a death rate of 0.44 per 1,000 population, and this number included 83 deaths of children under two years of age.

FOOD POISONING.

No definite cases of bacterial food poisoning, or " ptomaine " poisoning, came under notice during the year 1918 among the civil or military population.

TYPHUS.

No case of this disease occurred during the year.

SMALLPOX

There were no cases of Smallpox in Newcastle or district, but a number of suspicious cases were visited in consultation with private medical practitioners at different times.

The following are the particulars, courteously furnished by the Clerk to the Guardians, of infant **Vaccination** in Newcastle during recent years. (Walker, which belongs to the Tynemouth Rural area for registration purposes, is not included).

Year	Births Registered	Successful Vaccinations	Unsuccessful Vaccinations	Exemption Certificates.	
				Number	Percentage to Total Births
1905	7,958	7,264	27	65	0.8
1906	7,721	6,733	28	92	1.2
1907	7,610	6,702	16	94	1.2
*1908	7,747	6,414	20	449	5.8
1909	7,180	5,667	30	517	7.2
1910	7,023	5,532	22	683	9.7
1911	6,604	5,002	24	767	11.6
1912	6,715	4,625	18	982	14.6
1913	6,874	4,441	7	1,173	17.0
1914	7,023	4,230	11	1,499	21.2
1915	7,116	4,487	1	1,485	20.9
1916	7,117	4,405	9	1,509	21.2
1917	6,166	3,688	5	1,478	24.0
1918	6,092	3,488	15	1,362	22.0

* Vaccination Act, 1907, came into force.

The *Public Vaccinators* and *Vaccination Officers* for the various districts of the City are :—

Dene, Heaton and Byker Municipal Wards :—
Dr. Frank Russell, 41, Heaton Road.
Deputy—Dr. F. R. H. Laverick, Heaton Road.

St. Anthony's and St. Lawrence Municipal Wards :—
Dr. Richard Dagger, 1, Rothbury Terrace.
Deputy—Dr. L. S. Davison, 19, Heaton Road.

Walker District :—
Dr. J. R. Mitchell, Welbeck Road.
Deputy—Dr. W. T. Hall, 12, Heaton Road.
East Central :—
Dr. Frank Hawthorn, 10, Ellison Place.
Deputy—Dr. O. W. Ogden, 38, Jesmond Road.
West Central :—
Dr. James Don, 1, Grove Street.
Deputy—Dr. Jas. Hudson, 42, Crossley Terrace.
Western District :—
Dr. G. D. Newton, 2, Ellison Place.
Deputy—Dr. H. E. Fellowes, Addison Street, Heaton.
Poor Law Infirmary :—
Dr. G. P. Harlan.
Vaccination Officers :—
Western—Wm. Young, 14, Normanton Terrace.
Eastern—Wm. Garrett, 34, Harbottle Street.

ERYSIPELAS.

102 cases of this disease were notified, and there were 4 deaths.

PUERPERAL SEPTICÆMIA

Inquiries were made concerning 10 cases, one of which was brought to the Maternity Hospital from outside the City. All the cases were attended by doctors.

INFLUENZA.

Commencing, June, 1918, an extensive epidemic of Influenza occurred in Newcastle coincident with a similar outbreak throughout the whole world. It extended over a total period of nine months, and was divided into three waves, i.e., one in summer, one in autumn, and one in winter. In order to make the report more complete the whole period up to 30th April, 1919, has been included in the following account.

In the summer outbreak (June, July, August) 264 deaths occurred from Influenza and Pneumonia, the wards chiefly affected being St. Thomas' (26 deaths), Armstrong (22), Byker (20), and St. Anthony's (20). 72 deaths, or 27.2 per cent. occurred between the ages of 25 and 45, and 52, or 19.7 per cent., below the age of 5 years.

In the autumn outbreak (Oct., Nov., Dec.) 773 deaths occurred, St. Thomas' Ward again suffering most heavily, with 130 deaths, 85 deaths were registered in St. Lawrence ward, 60 in St. Anthony's, 59 in Byker, and 49 in Armstrong. With the exception of St. Nicholas and Westgate wards, all the wards showed a decided increase compared with the summer outbreak. 245, or 31.7 per cent.

of the deaths occurred between the ages of 25 and 45, and 153, or 19.8 per cent., below the age of 5 years.

In the winter outbreak (Jan., Feby., March, 1919), 924 deaths occurred, distributed more evenly throughout the City, and including more deaths in the outlying wards, such as Walker and Benwell, than the previous outbreaks. Byker (94), St. Lawrence (75), Armstrong (75), and St. Anthony's (66), again suffered heavily, whilst high figures were also noted in Stephenson (72) and All Saints' (69). St. Thomas' ward showed a big drop to 56 deaths. Whereas on the two previous outbreaks the greatest number of deaths had been registered between the ages of 25 and 45, in the winter outbreak a large increase in the deaths at ages below 5 years took place, 319 deaths (or 34.5 per cent.) being registered against 233 or 25.2 per cent. between the ages of 25 and 45 years.

In March, 1919, special investigation was made on the lines of a house to house inquiry in two selected quarters, one in the east end and one in the west end of the City, with a view to ascertaining the conditions influencing the outbreak. 970 households, containing a total population of 4,461, were investigated. The results may be summarised briefly as follows :—

(1) There was apparently an increasing ineffectivity in the disease from June, 1918, to March, 1919, and the mortality rate of the winter epidemic was decidedly higher than that of the summer.

(2) In each of the waves females were affected to a greater extent than males, particularly in the ages over 15 years.

(3) A remarkable change in the age incidence occurred between the summer and winter epidemics, for whereas in the former 41 per cent. of the cases occurred between the ages of 25 and 45 and only 19 per cent. between the ages of 5 and 15, in the winter epidemics 24 per cent. of the cases occurred between the ages of 5 to 15 and only 30 per cent. in the higher age period. The high attack rate on females over the age of 15 is largely explainable by the abnormally low proportion of males in the population at the time of the epidemic. A notable feature was the very high mortality on children below the age of 5 years.

(4) The influence of overcrowding upon the spread of infection proved to be somewhat contradictory. Table C. gives comparative

columns bases on the density of population per room, or state of "overcrowding." Whereas columns 4 and 6 indicate fairly definitely that increasing density of population per room leads to increase in the number of households affected and in the average number of cases per affected household, column 7 appears to show exactly the reverse, viz., that the greater the overcrowding the fewer actual cases occur. A comparison of the density of population per acre in the various wards and the deaths occurring in these wards gives equally indefinite results. St. Thomas' ward, with a net population per acre of 29 had 228 deaths ; St. Nicholas', with an equal density of population, had only 18 throughout the whole epidemic ; Byker, net population per acre 128, had 182 deaths ; St. Lawrence, net population per acre 103, had also 182 deaths ; St. Anthony's, with a density per acre of 27, showed 151 deaths, and Walker, with a density per acre of 15, 124 deaths. The most densely populated ward in the City, Westgate, with a population per acre of 176, had only 69 deaths throughout from Influenza and Pneumonia.

(5) The results of the inquiry appear to show also that an attack of the disease conferred a certain amount of protection against a subsequent attack, which showed a definite weakening after the lapse of six months.

Statistics attained from Newcastle and several neighbouring towns appear to show that school closure had a definite effect in reducing the incidence of the disease between the ages of 5 and 15, provided the schools were closed early in the outbreak.

As regards protective measures against infection, there appears to be no special drug which is of any value. Inoculation was not practised to any extent in Newcastle. During the winter epidemic specially selected cases were admitted to the City Hospital, Walker Gate for treatment, and the nursing and medical staffs wore face masks of four layers of gauze, whilst in attendance on patients. Instructions were also issued that a nasal douche and gargle of normal saline solution should be used at least once daily by all coming in contact with the cases. Although several cases of influenza occurred amongst the staff at the City Hospital, none of these were in nurses or maids who had been working in the influenza wards and who had been in closest contact with the disease in its severest form.

Table A.—DEATHS FROM INFLUENZA AND PNEUMONIA IN WARDS.

1st JUNE, 1918, TO END OF APRIL, 1919.

WARD.	INFLUENZA.												PNEUMONIA.												Influ, and Pneu.
	1918.							1919.					1918.							1919.					
	June	July	August	Sept.	October	Nov.	Dec.	Jan.	Feb.	March	April	To tal	June	July	August	Sept.	October	Nov.	Dec.	Jan.	Feb.	March	April	Total	
St. Nicholas'	..	3	..	..	..	1	2	..	3	3	..	12	1	1	1	..	..	..	1	1	..	..	1	6	18
St. Thomas'	..	..	..	..	13	46	11	6	16	15	1	108	6	13	7	2	9	34	17	6	6	7	3	110	228
St. John's ..	..	8	..	..	2	14	4	1	9	11	..	49	2	4	2	1	..	5	4	5	6	5	1	35	84
Stephenson .	..	6	..	..	1	22	6	1	31	19	1	87	4	3	2	..	..	8	2	3	11	7	4	44	131
Armstrong ..	..	13	1	..	1	32	4	2	24	19	2	98	2	5	1	1	2	5	5	3	17	10	4	55	153
Elswick ..	..	3	1	..	1	16	4	..	7	11	..	43	2	3	1	..	..	2	..	..	4	4	2	18	62
Westgate ..	2	4	2	..	..	19	1	..	6	7	1	42	4	4	2	..	..	3	4	..	5	3	2	27	69
Arthur's Hill'	..	1	..	..	..	5	4	2	8	11	..	31	1	..	..	..	1	3	1	..	2	1	2	11	42
Benwell ..	1	7	..	..	..	20	8	2	13	15	1	67	2	2	5	1	2	13	7	2	11	11	2	58	125
Fenham ..	..	4	..	..	1	15	1	..	18	12	1	52	1	3	..	..	..	5	1	..	1	5	2	18	70
All Saints' ..	..	9	..	..	1	26	10	1	20	8	1	76	4	6	..	..	1	6	3	6	27	7	4	64	140
St. Andrew's	..	7	..	..	..	15	7	1	11	5	1	47	4	2	1	..	2	4	5	2	8	4	..	32	79
Jesmond ..	..	4	..	..	..	7	5	..	12	8	1	37	2	..	..	..	..	2	1	..	2	1	..	8	45
Dene ..	..	1	..	..	1	10	5	2	14	6	1	40	2	..	1	..	1	3	..	2	5	3	2	19	59
Heaton ..	..	2	1	1	..	23	16	1	23	10	1	78	0	7	3	1	1	5	2	3	12	7	..	41	119
Byker ..	..	8	..	..	1	32	12	3	47	15	3	121	2	7	3	1	1	11	2	1	20	8	5	61	182
St. Lawrence	..	12	1	..	2	50	12	..	29	9	..	115	..	5	..	2	1	14	6	5	21	11	2	67	182
St. Anthony's	1	12	..	..	..	30	20	1	28	11	1	104	1	6	..	1	3	4	3	2	14	10	3	47	151
Walker ..	..	7	..	..	..	26	6	1	25	29	4	98	..	3	..	..	1	6	..	1	11	3	1	26	124
City ..	4	111	6	1	24	409	138	24	344	224	20	1,305	40	74	29	10	25	133	64	42	183	107	40	747	2,052

TABLE B.—DEATHS FROM INFLUENZA AND PNEUMONIA IN AGE PERIODS.

1ST JUNE, 1918, TO END OF APRIL, 1919.

AGE PERIOD.	INFLUENZA.												PNEUMONIA.											
	1918.							1919.				TOTAL	1918.							1919.				TOTAL
	June	July	August	Sept.	October	Nov.	Dec.	Jan.	Feb.	March	April		June	July	August	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	
0—5	..	7	..	..	1	65	16	5	96	45	4	239	14	20	11	3	6	39	26	17	103	50	15	304
5—15	1	9	1	..	..	59	16	1	46	8	..	141	1	7	2	..	3	12	10	3	15	6	2	61
15—25	1	24	1	1	14	76	24	3	23	19	2	188	5	12	4	..	5	26	6	3	7	9	3	80
25—45	1	42	3	..	7	151	42	10	88	85	6	435	5	16	5	2	4	35	6	6	27	17	3	126
45—65	1	22	..	..	1	51	30	1	64	47	6	223	9	15	4	4	4	16	13	9	29	10	10	123
65 & over.	..	7	1	..	1	7	10	4	27	20	2	79	6	4	3	1	3	5	3	4	2	15	7	53
TOTAL ..	4	111	6	1	24	409	138	24	344	224	20	1,305	40	74	29	10	25	133	64	42	183	107	40	747

TABLE C.

RELATION OF DENSITY OF POPULATION PER ROOM TO CASES.

HOUSEHOLDS CONTAINING.	Total No. of Households Investigated.	No. of Households Affected in Whole Epidemic Period.	No. of Households Not Affected Throughout.	Proportion of Affected Households to Total.	Total No. of Cases.	Average No. of Cases per Affected Household.	Actual No. of Cases to Immediate Contacts.	Percentage No. of Cases to Immediate Contacts in Affected Households.
Less than 1 person per room ..	101	36	65	1 in 2.8	49	1.36	1 in 2.12	47%
1—2 persons per room .	388	166	222	1 in 2.3	270	1.63	1 in 2.42	41%
2—3 persons per room .	292	142	150	1 in 2.0	322	2.27	1 in 2.41	41%
3—4 persons per room .	138	77	61	1 in 1.8	192	2.50	1 in 2.52	39%
4 and more persons per room ..	51	22	29	1 in 2.3	60	2.72	1 in 2.68	30%
TOTAL ..	970	443	527		893			

TABLE D.—AGE AND SEX INCIDENCE AND DEATHS.

		AGE PERIODS.																					TOTALS.		
		0—1			1—5			5—15			15—25			25—45			45—65			65 and over					
		M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
SUMMER— June, July and August, 1918.	Cases	1	3	4	14	8	22	32	22	54	14	34	48	36	77	113	14	18	32	3	1	4	114	163	277
	Deaths	. .	1	1	4	. .	4	0	1	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	4	2	6
	Percentage of cases in age period to cases at all ages .			1.5			7.9			19.5			17.3			40.8			11.5			1.5			
AUTUMN— Oct., Nov., and Dec., 1918.	Cases	2	2	4	10	11	21	29	27	56	18	26	44	24	49	73	11	21	32	1	2	3	95	138	233
	Deaths	1	. .	1	1	3	4	. .	. .	. .	1	. .	1	1	1	2	. .	. .	. .	. .	. .	. .	4	4	8
	Percentage of cases in age period to cases at all ages .			1.7			9.0			24.0			18.8			31.3			13.7			1.3			
WINTER— Jan., Feb., and March, 1919.	Cases	4	5	9	27	23	50	48	44	92	13	41	54	43	72	115	22	34	56	2	5	7	159	224	383
	Deaths	1	. .	1	4	4	8	1	3	4	2	2	4	. .	3	3	. .	1	1	1	. .	1	9	13	22
	Percentage of cases in age period to cases at all ages .			2.3			13.1			24.0			14.1			30.0			14.6			1.8			
TOTAL . .	Cases	7	10	17	51	42	93	109	93	202	45	101	146	103	198	301	47	73	120	6	8	14	368	525	893
	Deaths	2	1	3	9	7	16	1	4	5	3	2	5	1	4	5	. .	1	1	1	. .	1	17	19	36
	Percentage of cases in age period to cases at all ages .			1.9			10.4			22.9			16.7			33.6			13.4			1.6			

NOTE.—1. Change of age incidence between Summer and **Autumn** epidemics.
2. High incidence on females over 15 years.
3. High Death-rate (case mortality) under 5 years.
4. Increased incidence and mortality—winter epidemic

TABLE E.—DETAIL OF HOUSEHOLDS INVESTIGATED.

	Less than 1 person per room.					1—2 Persons per room.					2—3 Persons per room.					3—4 Persons per room.					4 and more Persons per room.				
	Affected.			Not Affected.		Affected.			Not Affected.		Affected.			Not Affected.		Affected.			Not Affected.		Affected.			Not Affected.	
	Households.	Occupants.	Cases.	Households.	Occupants.	Households.	Occupants.	Cases.	Households.	Occupants.	Households.	Occupants.	Cases.	Households.	Occupants.	Households.	Occupants.	Cases.	Households.	Occupants.	Households.	Occupants.	Cases.	Households.	Occupants.
Whole Period ..	36	104	49	65	150	166	665	270	222	804	142	777	322	150	752	77	482	192	61	369	22	161	60	29	197

TABLE F.—INCIDENCE OF COMPLICATIONS.

	Less than 1 per room.		1—2 per room.		2—3 per room.		3—4 per room.		4 and more per room.		TOTALS.		SUMMER	AUTUMN	WINTER
	Pneumonia.	Bronchitis.	Pneumonia.	Bronchitis.	Pneumonia.	Bronchitis.	Pneumonia.	Bronchitis.	Pneumonia.	Bronchitis.	Pneumonia.	Bronchitis.			
Single Attacks	2	4	13	10	26	15	17	8	7	1	65	38	15	26	76
Second Attacks ..	2	..	1	1	5	..	1	2	1	1	10	4	5.4%	11.0%	19.6%
TOTALS ..	4	4	14	11	31	15	18	10	8	2	75	42			
	8		25		46		28		10		117				
Percentage to Cases	16.3%		9.2%		14.3%		14.6%		16.6%		13.1%		5.4%	11%	19.6%

Percentage complications to Second Attacks 26%

VENEREAL DISEASES.

Syphilis was certified as the cause of death in 13 cases, and 1 death was assigned to "other venereal diseases."

The work of the treatment clinic has been continued successfully. 944 new cases attended 8,364 times as out-patients, and accounted for 1,045 in-patient days. Of the new cases 603 were syphilis, 265 gonorrhœa, 33 soft chancre, and 43 conditions, other than venereal, approximately two-thirds were males and one-third females.

2,732 doses of salvarsan substitutes were administered,

1,482 Wasserman reactions were carried out at the College of Medicine, and 34 microscopical examinations of pathological material were made at the College and 72 at the treatment clinic. An irrigation station for males and for females was under construction in connection with the clinic, and was practically completed at the end of the year.

Semi-permanent wards for 24 beds were also completed.

Educational and propaganda work was carried on by the Health Department in conjunction with the Newcastle Branch of the National Council for Control of Venereal Diseases. Seven lectures were arranged for various Women's organisations, and several other addresses were given. A considerable quantity of selected educational pamphlets was distributed where it was likely to serve a useful purpose.

Lt.-Col. Bolam reports that about half of the patients at the clinic cease attendance before their full course of treatment is completed. This, it is felt, will not be overcome without some measure of notification and compulsion.

Private practitioners continue to take advantage of the very full opportunities offered to them for study and practical experience at the clinic.

ACUTE POLIOMYELITIS AND EPIDEMIC CEREBRO-SPINAL MENINGITIS.

	NUMBER OF CASES.																														
	0—1 Year.						1—5 Years.						5—10 Years.						10—15 Years.						15 Years and Over.						
	Male.			Female.			Male.			Female.			Male.			Female.			Male.			Female.			Male.			Female.			
Total No. of Cases.	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	Cases	Deaths	Permanent Paralysis	
Nil.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	Acute Poliomyelitis.
*11	1	1	....	....	....	....	4	3	....	1	1	....	1	1	....	1	....	....	....	....	....	1	1	....	2	....	....	....	....	....	Cerebro-Spinal Fever.
Cases Removed to Isolation Hospital.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	Acute Poliomyelitis.
	....	....	....	....	....	....	2	1	....	....	....	....	1	1	....	1	....	....	....	....	....	1	1	....	2	....	....	....	....	....	Cerebro-Spinal Fever.

* This includes 1 outside case, which occurred in a public Institution.

This return is exclusive of 5 military cases which occurred within the City, and 15 further military cases sent to the City Hospital from districts outside Newcastle for treatment.

CITY HOSPITALS FOR INFECTIOUS DISEASES.

Accommodation.

NAMES AND SITUATION OF HOSPITALS.	TOTAL AVAILABLE BEDS.
City Hospital for Infectious Diseases, Walker Gate (including Phthisis Pavilions, 62 beds)	294
Smallpox and Isolation Hospitals, Town Moor	172

YEAR	Population of the City	Number of Beds at City Hospital for Fever Cases	Total Admissions (exclusive of Phthisis)	Percentage of Notified Cases Admitted
1890	182,866	104	219	21.3
1900	213,039	104	290	38.6
1909	263,064	172	1,090	78.0
1910	265,077	172	912	83.0
1911	267,261	172	1,110	83.1
1912	269,193	172	1,542	86.4
1913	271,295	172	1,286	88.3
1914	271,523	172	1,835	78.9
1915	278,107	232	1,886	90.5
1916	278,107	232	1,380	87.0
1917	278,107	232	1,303	87.5
1918	278,107	232	1,245	87.5

CITY HOSPITAL, WALKER GATE.

(Fever Pavilions).

Admissions during the year—1,245.

The *average daily number* of patients in the hospitals was 107 exclusive of 45 cases of phthisis.

RATE PER CENT. OF CASES REMOVED TO HOSPITAL TO CASES NOTIFIED.

	1890	1895	1900	1905	1910	1911	1912	1913	1914	1915	1916	1917	1918
Scarlet Fever	18·4	33·0	35·0	50·1	84·5	83·8	88·0	90·6	81·4	91·3	94·5	91·9	99·3
Diphtheria	8·3	28·7	40·0	36·8	80·1	80·5	81·8	81·5	84·8	89·1	84·6	82·0	91·6
Enteric Fever	38·9	48·0	54·5	52·0	90·5	92·0	91·2	91·1	94·1	87·0	96·6	96·0	93·1
All cases of the above together with Continued and Typhus Fever, and Cerebro-Spinal Fever, ...	21·3	34·6	38·6	47·8	83·0	83·1	86·4	88·3	82·6	90·5	87·0	87·5	87.5

DISEASES AND MORTALITY RATES.

Mortality of cases treated in Hospital as compared with cases not Removed during 1918.

DISEASE.	Hospital.			Not Removed.		
	Total Cases (Verified)	Deaths	Case Mortality per cent	Total Cases as (Notified)	Deaths	Case Mortality per cent
Scarlet Fever ..	381	13	2·62	3	2	66·6
Diphtheria ..	205	9	4·39	21	10	47·6
Enteric Fever ..	26	2	7·7	2	—	—

Expenses of Maintenance.—Of the patients admitted, the expense of maintenance is charged as under:—

	Cases.
To the Newcastle Sanitary Authority	682
To private guarantors	7
To the War Office and Admiralty	334
To Consuls, &c.	8
To the Local Government Board	214
Total	1,245

CITY HOSPITAL FOR INFECTIOUS DISEASES.—Diseases Admitted—1918.

Sent in as:—	Number	Scarlet Fever	Diphtheria	Diphtheria Carriers	Enteric Fever *	Measles	Rubella	Epidemic Cerebro-Spinal Meningitis	Other Forms of Meningitis	Varicella	Pertussis	Influenza	Mumps	Smallpox	Pneumonia	Other Respiratory Diseases	Erythema	Tonsillitis	Skin Infections	Diseases of the Castro Intestinal Tract	Diseases of the Nervous System	Tetanus	Septic Infections	Ophthalmia Neonatorum	Indefinite	Epidemic Cerebro-Spinal Meningitis Carriers	Contacts of Infectious Diseases
	After Observation Proved to be.—																										
Scarlet Fever	423	376	2	..	..	3	13	..	..	1	..	3	1	..	1	2	12	1	..	..	..	..	1	..	7	..	..
Diphtheria	229	4	202	..	..	2	..	..	..	..	..	2	..	..	..	4	..	9	..	1	..	1	3	..	1	..	..
Diphtheria Carriers	26	..	..	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	38	..	..	..	27	..	..	..	1	..	..	1	..	..	3	1	..	..	..	1	..	..	1	..	3	..	..
Measles	105	..	..	..	..	81	18	..	..	..	..	1	..	..	..	1	2	..	1	..	..	..	..	..	1	..	..
Rubella	50	1	..	..	..	..	43	..	..	..	..	1	..	..	..	..	4	..	..	..	..	..	..	..	1	..	..
Epidemic Cerebro-Spinal Meningitis	45	..	..	..	..	..	..	24	10	..	..	2	..	..	1	1	..	..	..	..	1	..	1	..	5	..	..
Epidemic Cerebro-Spinal Meningitis Carriers	71	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	71	
Varicella	27	..	..	..	..	..	..	..	..	26	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Mumps	27	..	..	..	..	..	..	..	..	..	..	..	25	..	..	..	..	..	..	..	..	..	2	..	..	..	..
Ophthalmia Neonatorum	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Smallpox	7	..	..	..	..	..	..	..	..	1	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	32	..	1	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Contacts of Infectious Diseases	138	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	138
Erysipelas	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	..	..	..	1	..	..	..	..
Pediculosis	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..
Pleurisy	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..
Pneumonia	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..
Pertussis	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scabies	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Puerperal Fever	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Tonsilitis	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..
Dysentery	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Intestinal Stasis	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Cellulitis	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Totals	1245	381	205	26	27	86	74	24	11	28	1	41	26	6	7	11	18	12	17	4	1	1	10	1	18	71	138

ADMISSIONS AND DEATHS, 1918.

DISEASES.	ADMISSIONS.													DEATHS.												
	January	February	March	April	May	June	July	August	September	October	November	December	Total	January	February	March	April	May	June	July	August	September	October	November	December	Total
Scarlet Fever	50	31	30	32	21	19	13	21	48	45	42	29	381	2	..	..	1	..	1	2	2	..	1	..	..	9
Diphtheria	24	17	15	22	12	13	8	15	25	23	20	11	205	5	2	1	1	..	1	..	1	..	1	1	..	13
Diphtheria Carriers	3	1	6	5	1	1	4	1	..	3	1	..	26	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	2	..	4	3	2	3	3	2	2	5	1	..	27*	..	..	..	..	..	..	1	1	..	..	..	..	2
Measles	3	3	5	1	3	25	37	2	1	3	2	1	86	..	..	..	..	..	1	..	..	..	..	..	..	1
Rubella	2	10	37	12	6	2	1	1	..	..	2	1	74	..	..	..	..	..	..	..	..	..	..	..	..	..
Epidemic Cerebro-Spinal Meningitis	3	6	3	1	2	2	1	1	2	1	..	2	24	..	1	2	1	..	1	..	1	1	..	..	1	8
Other forms of Meningitis ..	2	2	2	1	..	2	..	1	..	1	..	..	11	1	1	2	..	..	2	..	1	..	1	..	..	8
Varicella	1	1	1	..	1	11	12	..	..	1	..	..	28	..	..	..	..	..	..	..	..	..	..	..	..	..
Pertussis	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	..	..	..	..	..	9	9	..	2	2	18	1	41	..	..	..	..	..	..	..	..	..	..	1	1	2
Mumps	..	2	2	4	1	1	1	4	2	4	2	3	26	..	..	..	..	..	..	..	..	..	..	..	..	..
Smallpox	..	..	..	..	..	3	..	3	..	..	..	..	6	..	..	..	..	..	1	..	..	..	..	..	..	1
Pneumonia	..	..	..	1	1	2	3	..	..	..	..	..	7	..	..	..	1	..	..	..	2	..	..	..	..	3
Other Respiratory Diseases ..	..	2	1	3	2	..	1	1	..	1	..	..	11	..	..	..	..	..	..	..	1	..	..	..	..	1
Erythema..	..	..	1	1	3	2	3	1	2	3	1	1	18	..	..	..	..	..	..	..	..	..	..	..	..	..
Tonsillitis	..	1	1	2	..	..	1	..	1	2	2	2	12	..	..	..	..	..	..	..	..	..	..	..	..	..
Skin Infections (including Erysipelas)	1	..	3	1	4	2	1	1	1	..	..	3	17	..	..	..	..	..	..	..	..	1	..	..	..	1
Diseases of the Gastro-Intestinal Tract	..	..	..	..	..	..	1	..	..	1	2	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..
Diseases of the Nervous System	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Tetanus	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	1
Septic Infections	..	1	1	..	..	2	1	..	1	1	2	1	10	..	..	..	..	..	1	..	..	..	..	1	..	2
Ophthalmia Neonatorum ..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	1
Indefinite	4	3	5	..	1	1	..	..	3	1	..	..	18	..	..	..	..	..	..	..	..	..	..	..	..	..
Contacts of Infectious Diseases ..	2	..	..	..	1	110	12	6	2	..	4	1	138	..	..	..	..	..	..	..	..	..	..	..	..	..
Epidemic Cerebro-Spinal Meningitis Carriers	8	12	11	10	5	5	7	..	5	4	3	1	71	..	..	..	..	..	..	..	..	..	..	..	..	..
TOTALS	105	92	128	99	67	216	120	61	97	101	102	57	1,245†	8	4	5	4	1	8	4	9	2	3	3	2	53

* Includes 1 case of Paratyphoid B.

† Includes 1 case of Influenza amongst the medical staff, 2 cases of Scarlet Fever, 1 of Diphtheria and 15 of other diseases amongst the nurses, and 9 cases of other diseases amongst the maids.

Length of Stay in Hospital of Fatal cases.—Of the foregoing, the following *died within* 24 *hours of admission*—Diphtheria 6, Septicaemia 1, Streptococcal Meningitis 2.—Total 9.

The average time in hospital of the fatal cases was—Scarlet Fever 8 days, Diphtheria 4 days, and Cerebro-Spinal fever 15 days.

The following are the particulars of the *Naval and Military Cases* admitted (included in the foregoing large tables).

NAVAL AND MILITARY CASES ADMITTED.

Disease.	Cases.	Deaths.
Scarlet Fever	21	..
Diphtheria	33	..
Diphtheria Carriers	6	..
Epidemic Cerebro-Spinal Meningitis	18	4
Carriers of Cerebro-Spinal Meningitis	70	..
Measles	12	..
Rubella	70	..
Enteric Fever	6	1
Mumps	23	..
Varicella	6	..
Indefinite Disease	9	..
Erythema	7	..
Diseases of Respiratory System	5	1
Influenza	7	1
Meningitis other than Epidemic Cerebro-Spinal	4	3
Miliary Tuberculosis	1	1
Other Diseases	21	..
Total	319	11

The above deaths refer to the actual cases admitted during the year, whether the deaths occurred within the same period or not.

Rate per cent. of deaths to cases admitted in 1918 :—

Military and Naval ..	3.4
Civilians	4.4

Present Death Rates compared with those of Previous Years.

RETURN SHEWING THE NUMBER OF CASES OF SCARLET FEVER, DIPHTHERIA, AND ENTERIC FEVER ADMITTED TO HOSPITAL, AND MORTALITY RATES PER CENT. 1890-1895.

YEAR.	NUMBER OF CASES ADMITTED TO HOSPITAL.			NUMBER OF DEATHS.			CASE MORTALITY, PER CENT.		
	Scarlet Fever	Diphtheria	Enteric Fever	Scarlet Fever	Diphtheria	Enteric Fever	Scarlet Fever	Diphtheria	Enteric Fever
1890	114	15	80	2	1	14	1.8	6.7	17.5
1891	110	10	67	5	6	6	4.5	60.0	8.9
1892	244	18	26	8	5	5	3.3	27.8	19.2
1893	202	15	49	5	2	6	2.5	13.3	12.2
1894	230	8	60	6	3	13	2.6	37.5	21.7
1895	319	41	75	10	10	21	3.1	24.4	28.0
	1,219	107	357	36	27	65	2.9	28.3	17.9
1912-1918.									
1912	1,018	383	82	34	27	13	3.3	7.0	15.8
1913	853	254	109	21	22	12	2.5	8.7	11.0
1914	1,404	251	86	43	21	13	3.1	8.4	15.1
1915	1,305	223	88	37	18	10	2.8	8.0	11.4
1916	677	210	57	19	23	8	2.8	10.9	14.0
1917	409	164	12	13	22	1	3.1	13.5	8.3
1918	381	205	26	9	13	2	2.6	4.4	7.8
	6,047	1,490	460	176	146	59	2.9	9.8	12.8

CEREBRO-SPINAL FEVER.

24 cases of Cerebro-Spinal Fever were admitted during the year. 18 were military or naval cases, and of these 4 died, equivalent to a mortality rate of 22.2 per cent.* The average number of days in hospital of the cases recovering was 95 ; of the cases dying, 19.5. Of the 6 remaining civil cases 4, or 66.6 per cent., were fatal.

Diphtheria.—*Cases in Hospital.*—Of the 205 patients in Hospital 164 were faucial of pharyngeal cases, of which 5, or 3 per cent., died ; 28 were also laryngeal or tracheal, of which 3, or 10.7 per cent. died (including cases dying after tracheotomy) ; 13 cases had involvement of the nasal passages and 5 died, giving the high case mortality rate of 38.4 per cent. for this class of case. Tracheotomy was performed in 5 cases, of which 2, or 40 per cent., died. Of the 13 deaths, 6 were moribund on admission, and died within 24 hours, and 1 died within 48 hours.

As hitherto, the patients sent to hospital, generally speaking, came from much less favourable surroundings than those treated at home, and suffered from a severer type of disease.

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* The average number of days in Hospital of the cases recovering was 95, of the cases dying 19.5.

Antitoxin is administered to all cases of Diphtheria admitted to hospital which have not received the remedy at home.

Bacteriological diagnosis is made in the great majority of cases before admission.

Mixed Infection.—Fifty-four patients sent into hospital, or 4.3 per cent., were found on admission to be suffering from or incubating two or more distinct infectious diseases, as follows :—

Scarlet Fever and Diphtheria	11
Scarlet Fever and Varicella	4
Scarlet Fever and Scabies	3
Scarlet Fever and Pertussis	3
Scarlet Fever and Vaccenia (septic)	1
Scarlet Fever and Tuberculosis	1
Scarlet Fever and Impetigo	2
Scarlet Fever, Measles and Pneumonia	1
Scarlet Fever and Measles	1
Diphtheria and Scabies	2
Diphtheria and Ringworm	3
Diphtheria and Varicella	1
Diphtheria and Pertussis	1
Diphtheria and Vincent's Angina	1
Diphtheria and Measles	2
Diphtheria, incubating Scarlet Fever	1
Diphtheria, incubating Varicella	1
Diphtheria and Scarlet Fever	1
Enteric Fever and Pulmonary Tuberculosis	1
Measles and Varicella	1
Measles incubating Varicella	3
Measles Contact and Varicella	2
Varicella, incubating Measles	1
Mumps and Pertussis	2
Epidemic Cerebro-Spinal Meningitis and Influenza	1
Rubella, incubating Varicella	1
Erythema and Scabies	1
Influenza, incubating Scarlet Fever and Varicella	1
	54

Thus, 7.1 per cent. of the cases of Scarlet Fever on admission were suffering from or incubating another infectious condition, and 6.3 per cent. of the cases of Diphtheria.

Deaths from Concurrent Affections.—Out of the total number of deaths from all causes in hospital (53), 2, or 3.8 per cent., were of patients suffering from a concurrent affection directly or partially causative of the fatal termination. These were as follows :—

DEATHS FROM CONCURRENT AFFECTIONS.

Diphtheria and Measles	1
Enteric Fever and Pulmonary Tuberculosis	1

Cross Infection.—During the year under report 21 patients developed a second infection in the wards; of these 6 were incubating the second disease on admission, the remaining 15, or 1.2 per cent of all cases admitted, acquiring the second infection in hospital.

Particulars of the cases are shown in the following table:—

CROSS INFECTIONS.

Sent in as	Developed	Number of cases.
Scarlet Fever	Diphtheria	3
,, ,, ...	Measles	3
,, ,, ...	Impetigo	1
,, ,, ...	Scabies	1
Diphtheria	Scarlet Fever and Scabies ..	1
,, ...	Scarlet Fever	1
,, ...	Scarlet Fever and Varicella..	1
Epidemic Cerebro-Spinal Meningitis Carrier ..	Scarlet Fever and Diphtheria	1
Pharyngitis	Scarlet Fever	1
Erythema	Scarlet Fever	1
Indefinite	Scarlet Fever	1
	Total	15

Of 423 cases sent in as Scarlet Fever, 8, or 1.8 per cent., were infected with a second disease in hospital. Of 229 cases sent in as Diphtheria, 2 were incubating a second disease, and 3, or 1.3 per cent., were infected in hospital. Of 593 cases of diseases other than Scarlet Fever and Diphtheria sent in, 4 were incubating a second disease, and 5, or 0.8 per cent., were infected in hospital.

"Return" Cases.—The following are details of the "return" cases during the year:—

"RETURN" CASES OF SCARLET FEVER, 1918.

SCARLET FEVER.	"Infecting" Cases.		"Return" Cases.		"Infecting" Cases.
Total Admissions.	No.	Percentage.	No.	Percentage.	Average Day of Disease when Discharged.
381	13	3·4	14	3·6	45·2

SEASONAL OCCURRENCE.

QUARTER.	Total Scarlet Fever Admissions.	"Infecting" Cases.		"Return" Cases.	
		No.	Percentage.	No.	Percentage.
January to March ..	111	2	1·8	2	1·8
April to June	72	1	1·4	1	1·4
July to September ..	82	3	3·6	3	3·6
October to December ..	116	7	6·0	8	6·9

Of the 13 " infecting " cases (*a*) 3 had no complications or discharges whilst in hospital, and remained " clean " after reaching home ; (*b*) 2 had slight albuminuria in hospital, but were otherwise " clean " and remained clean after reaching home ; (*c*) 2 had slight albuminuria whilst in hospital and developed nasal discharge after reaching home ; (*d*) 1 had no complications in hospital, but developed nasal discharge after reaching home ; and (*e*) 5 had " dirty " cases in hospital but were " clean " on discharge.

Of the above classes the average day of disease on discharge from hospital and the period elapsing before the onset of illness of the " return " case after the discharge from hospital of the supposed " infecting " case were as follows :

Class (*a*) 41 and 18 days ; Class (*b*) 38 and 13 days ; Class (*c*) 57 and 7 days ; Class (*d*) 39 and 29 days ; and Class (*e*) 51 and 10 days.

" Return " Cases for Years 1906-1918.

Year	Total Scarlet Fever Admitted	" Infecting " Cases		" Return " Cases.	
		No	Percentage.	No.	Percentage.
1906	442	7	1.6	10	2.3
1907	390	11	2.8	17	4.4
1908	283	4	1.4	5	1.8
1909	623	23	3.7	30	4.8
1910	465	18	3.9	20	4.3
1911	605	26	4.3	30	4.9
1912	1,018	47	4.6	52	5.1
1913	853	23	2.7	24	2.8
1914	1,404	78	5.6	96	6.8
1915	1,305	43	3.3	49	3.7
1916	677	22	3.3	24	3.5
1917	409	9	2.2	13	3.2
1918	381	13	3.4	14	3.6

Hospital and Home " Isolation " Compared.

In order to determine the relative liability to further infection subsequent to the first, in hospital and home-isolating households respectively, a careful record has been kept for six years of the number of presumably susceptible persons in each invalided house all, other than the original patient, below 12 years of age being so classed, and the proportionate incidence of secondary cases calculated.

Cases occurring within seven days of the " isolation " of the original case were not counted, as these probably acquired their infection before the influence of the " isolation " could be felt.

Cases occurring subsequently to the seventh day of " isolation " of the original case, and prior to the release of the latter, were classed as " incidental " infections.

Cases occurring within 28 days after the release of the original case from " isolation " were classed as " return " infections.

The following table shows the results obtained :—

YEAR	1913.		1914.		1915.		1916.		1917.		1918.		6 Years.	
Patient "isolated" at	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home
" Susceptibles " in the homes of each class of patient	1131	53	1708	244	1462	86	800	8	509	17	450	20	6060	418
" Incidental " infections	69	3	78	28	85	7	33	2	25	. .	18	. .	308	40
Percentage of " incidentals " to " susceptibles "	6.1	5.7	4.6	11.5	5.8	8.1	4.1	25.0	5.0	. .	4.0	. .	5.0	9.6
" Return " Infections	29	. .	84	. .	55	2	21	1	20	. .	14	. .	223	3
Percentage of " returns " to " susceptibles "	2.6	. .	4.9	. .	3.8	2.3	2.6	12.5	3.9	. .	3.1	. .	3.7	0.7
Total of " incidental " and "return" infections	98	3	162	28	140	9	54	3	45	. .	32	. .	531	43
Percentage of this total to " susceptibles "	8.7	5.7	9.5	11.5	9.6	10.5	6.7	37.5	8.8	. .	7.1	. .	8.8	10.3

Thus it is seen, on six years working, that there are fewer secondary cases in the households which sent their first case to hospital. This difference is the more marked when one analyses the relative housing accommodation of the two classes. Thus for every "susceptible" remaining at home among the hospital-isolating class, there were on an average at least 2.07 rooms, whereas in the home-isolating class there was an average of at least 5.12 rooms for each "susceptible," the home class having therefore more than twice the accommodation of the others, and being in fact selected on that account. If, therefore, home isolation were as efficient, case for case, as hospital, one would have expected to find a great preponderance in favour of the home class in the above evidence, instead of which the result is entirely the other way.

Average stay in Hospital during the last Ten Years.

Year	All Cases		Scarlet Fever		Diphtheria		Enteric Fever		Other Diseases	
	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days	No.	Average Stay in Days
1908	614	48.4	283	56.3	220	40.0	88	48.5	25	31.8
1909	1,090	49.2	623	54.3	334	41.6	56	45.9	78	42.8
1910	912	44.4	465	51.3	317	37.2	47	46.4	83	32.5
1911	1,110	45.6	605	50.5	375	41.9	68	44.4	62	20.2
1912	1,542	45.8	1,018	46.1	383	45.7	82	46.2	59	20.9
1913	1,286	45.5	853	47.6	254	47.9	109	43.4	70	19.6
1914	1,835	41.6	1,404	44.4	251	34.4	86	41.2	94	20.2
1915	1,886	41.3	1,305	47.1	223	35.6	88	44.0	271	17.2
1916	1,380	35.7	677	42.5	210	38.2	57	48.8	436	22.3
1917	1,303	33.9	409	46.5	164	43.5	12	59.8	718	24.0
1918	1,245	32.1	381	45.2	205	46.6	27	52.3	632	18.7

Bacteriological Laboratory, City Hospital.

The following examinations were made in connection with the patients in the fever wards :—

Swabs for Diphtheria germs	1196
Cerebro-Spinal Fluid, for Meningococci and Cells ..	13
Sputum, for Tubercle Bacilli	4
Vincent's Angina	1
Ophthalmia	1
Enteric	1
Total	1216

SMALLPOX AND ISOLATION HOSPITALS, TOWN MOOR.

165 cases of various kinds were admitted between June 29th and November 15th (150 from the "Porto," and 11 from the "Czar"), also 1 from Allendale (suspected Smallpox), 2 from City Hospital, owing to mother having Diphtheria and the father being in France, and 1 from a private house in the West End as a suspected case of Diphtheria.

The following are the particulars of the cases from the "Porto":

Smallpox Hospital.—Smallpox 3, Smallpox contacts 9.

Isolation Hospital.—Chickenpox 18—and mother in attendance. Measles, or supposed measles, 77—mothers or other women not patients, accompanying young children, 42.

Particulars of the cases admitted from the "Czar":—

Smallpox Hospital.—Smallpox 4, and 2 contacts.

Isolation Hospital.—Mumps 3, and 2 mothers in attendance.

The last case was discharged on November 22nd and the ward were unoccupied for the remainder of the year.

TUBERCULOSIS.

Report of the Tuberculosis Medical Officer.

To the Medical Officer of Health.

Sir,

Herewith I beg to submit my Report on the work of the Tuberculosis section during the year 1918.

The number of deaths from tuberculosis shows a satisfactory decrease and this is most noticeable in respect of the non-pulmonary forms of the disease, the death rate from which is equal to the lowest ever recorded in the City. I have every hope that with the return of peace we shall see still lower mortality rates year by year. A regretable feature is the fact that 18.5 % of the patients who died of pulmonary tuberculosis had not been notified prior to death, while a further 31.5 % died within 3 months of notification. Unless earlier notification is secured the results of institutional treatment are bound to be unsatisfactory.

The volume of work accomplished at the Dispensary continues to increase, and I would like to place on record my appreciation of the conscientious and painstaking industry of the clerical and nursing staffs.

Finally, sir, I beg to thank you for your continued interest in the work of this section of the department, and for your valuable counsel so freely given when difficulties have arisen.

Yours faithfully,

W. H. Dickinson,

Tuberculosis Medical Officer.

REPORT.

Notifications.—896 notifications were received during the year, but some of the patients had already been notified, so that the total number of new cases was 819, of whom 552 were certified to be suffering from pulmonary and 267 from other forms of tuberculosis.

The details are set forth in the accompanying tables together with some comparative figures for previous years :—

NOTIFICATIONS—ORIGINAL AND REPEATED.

Year.	TOTAL.	Nett New Notifications.	Notified twice.	Notified three times.	Notified four times.	Notified five times.	Notified six times.	Notified seven times.
1912	1,249	972	192	59	18	6	1	1
*1913	1,441	1,246	158	26	9	2	..	..
1914	1,060	958	88	13	..	1	..	..
1915	1,108	964	131	9	4	..	..	..
1916	1,125	987	128	9	1	..	..	..
1917	1,007	909	91	6	1	..	..	..
1918	896	819	70	5	2	..	..	..

* On February 1st, 1913, all forms of Tuberculosis became notifiable.

SOURCE OF NOTIFICATIONS.

Year.	Total Number of Nett Cases Notified.	Notified by Medical Practitioners.	Notified by the Tuberculosis Medical Officer.	From Other Sources than Medical Practitioners (Death Returns, etc.)
1912	972	893	Nil.	79
1913	1,246	957	140	149
1914	958	624	180	154
1915	964	694	146	124
1916	987	757	162	68
1917	909	555	244	110
1918	819	456	221	142

SUMMARY OF NOTIFICATIONS DURING THE PERIOD 1ST JANUARY TO 31ST DECEMBER, 1918.

AGE PERIODS.	Number of Notifications on Form " A."													Number of Notifications on Form " B;"					Number of Notifications on Form " C."		Number of Notifications on Form " D."	
	Primary Notifications.												Total Notifications (including Cases previously notified by other doctors).	Primary Notifications:				Total Notifications (including Cases previously notified by other doctors).	Poor Law Institutions.	Sanatoria.	Poor Law Institutions.	Sanatoria.
	0 to 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and upwards.	TOTAL		Under 5	5 to 10.	10 to 15.	TOTAL.					
Pulmonary—																						
Males	1	7	19	24	30	33	70	73	46	15	7	325	365	..	1	1	2	2	26	97	9	113
Females ..	3	6	20	19	27	25	44	46	26	4	2	222	248	..	..	3	3	3	26	32	10	15
Non Pulmonary—																						
Males	8	32	34	16	7	4	7	9	2	4	1	124	127	..	3	2	5	7	7	12	2	3
Females.. ..	8	33	22	26	16	8	10	5	3	2	..	133	139	..	3	2	5	5	4	7	4	13
TOTAL	20	78	95	85	80	70	131	133	77	25	10	804	879	..	7	8	15	17	63	148	25	144

Form " A."—Notification by any Medical Practitioner of a case of Tuberculosis (whether at an Institution or otherwise).

Form " B."—Notification by School Medical Officers of cases of Tuberculosis in children attending Public Elementary Schools of which he has become aware in the course of inspection.

Form " C."—Notification by the Medical Officers of Poor Law Institutions and Sanitoria of Persons admitted who are suffering from Tuberculosis.

Form " D."—Notification by the Medical Officers of Poor Law Institutions and Sanatoria of persons discharged who are suffering from Tuberculosis.

Deaths.—566 deaths were registered as due to some form of tuberculosis, and of these 383 were certified as due to pulmonary tuberculosis (including 12 cases of acute phthisis) and 183 to other forms of the disease.

On these figures the death rates per 1,000 population were:—

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis	383	1.37
Other Forms of Tuberculosis	183	0.66
Total Tuberculosis Death Rate (uncorrected)	566	2.03

It must be noted, however, that 49 residents of Newcastle died in other parts of the United Kingdom from tuberculosis (44 pulmonary; 5 other forms), while 84 of the deaths (34 pulmonary; 50 other forms) registered in Newcastle were those of temporary residents.

The corrected deaths and death rates per 1,000 of the population were:—

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis	393	1.41
Other Forms	138	0.50
All forms of Tuberculosis (corrected) ..	531	1.91

198 of the persons who died during the year had attended the Tuberculosis Dispensary, while a further 59 had been visited by the nurses, making a total of 257 known to the Dispensary staff.

The figures for previous years are appended.

TABLE SHOWING NUMBER OF DEATHS FROM TUBERCULOSIS AND NUMBER WHO WERE ATTENDED FROM THE DISPENSARY.

Year.	Deaths (uncorrected).			Attended Dispensary.	Visited by Nurses, but never attended Dispensary.	Total.	The percentage of cases known to Dispensary to the number of deaths.
	Lungs.	Other Forms.	Total.				
1913	311	170	481	63	188	251	52.18
1914	365	170	535	158	66	224	41.87
1915	378	184	562	206	64	270	48.04
1916	407	177	584	193	89	282	48.29
1917	406	185	591	222	70	292	49.40
1918	383	183	566	198	59	257	45.40

In 209 cases, *i.e.*, 58 % of the 364 deaths from tuberculosis of the lung the diagnosis had been verified bacteriologically.

186 "insured persons" are included amongst the total deaths.

Sex and Age Distribution.—There was a substantial decrease in the number of female deaths from pulmonary tuberculosis, as is seen in the subjoined table:—

DEATHS FROM TUBERCULOSIS.—SEX AND AGE PERIODS.

Lungs.

Year.	Sex.	Under 1 year.	1 and 2	3 and 4	5 to 10	10 to 15	15 to 16	16 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 70	70 and over	Total.
1913	Male ..	1	3	6	5	5	1	5	14	43	37	35	10	3	3	171
	Female ..	..	3	1	5	8	4	13	11	35	26	13	6	1	..	126
1914	Male ..	..	1	2	4	3	2	12	14	47	59	47	15	3	1	210
	Female ..	1	5	1	7	13	4	11	17	32	25	19	6	..	..	141
1915	Male ..	3	1	2	7	5	1	14	22	53	59	39	23	10	..	239
	Female ..	1	3	1	4	12	2	10	9	25	31	22	7	..	1	128
1916	Male ..	..	5	4	2	5	..	18	20	38	56	54	22	6	3	233
	Female ..	..	2	4	7	7	2	17	15	42	35	17	5	1	1	155
1917	Male ..	1	3	..	4	7	2	12	24	31	46	55	15	2	1	203
	Female ..	2	3	..	7	13	3	25	22	41	38	19	3	4	..	180
1918	Male ..	1	3	3	8	10	1	15	25	33	53	36	16	4	3	211
	Female ..	2	5	..	4	5	4	18	24	36	39	14	2	..	..	153

Other Forms.

1913	Male ..	15	26	3	12	6	1	3	1	6	4	2	1	2	2	84
	Female ..	14	19	5	8	8	..	2	2	5	4	1	..	..	..	68
1914	Male ..	13	17	8	14	7	..	5	7	4	3	2	2	..	..	82
	Female ..	17	11	11	13	9	..	2	3	3	..	3	2	..	..	74
1915	Male ..	12	23	7	16	7	..	4	2	3	1	2	1	1	2	81
	Female ..	17	20	8	10	7	..	8	2	4	3	2	..	..	..	81
1916	Male ..	12	24	10	9	8	2	7	1	5	3	2	..	..	..	83
	Female ..	7	18	6	6	8	..	..	2	2	3	..	..	..	..	52
1917	Male ..	2	19	8	13	7	..	8	3	4	3	2	1	..	..	70
	Female ..	3	15	12	13	11	..	12	3	4	3	1	..	..	..	77
1918	Male ..	7	18	6	12	8	..	1	2	5	5	4	2	..	1	71
	Female ..	7	8	7	9	10	..	4	1	5	2	2	1	..	..	56

N.B.—The above only includes those persons who were residents of and died in Newcastle-upon-Tyne.

The figures are further analysed in the large table on page 121A. From this it is clearly evident that while pulmonary tuberculosis claims most of its victims after the age of 16 years (the age at which a person is eligible to enter into National Health Insurance) an overwhelming majority of the deaths from tuberculous meningitis and abdominal tuberculosis occurs in the first fifteen years of life.

DEATHS FROM TUBERCULOSIS.—Sex and Age Distribution.

	Under 1 year.		1 and 2		3 and 4		5 to 10		10 to 15		15 to 16		16 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 70		70 and upwards		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Pulmonary Tuberculosis . .	1	2	3	5	3	. .	7	4	9	5	1	4	15	18	25	23	33	34	53	39	36	14	16	2	4	. .	3	. .	209	150
Acute Phthisis	. .	. .	. .	. .	. .	. .	1	. .	1	. .	. .	. .	. .	. .	. .	1	. .	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	3
Acute Miliary Tuberculosis	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Tuberculous Meningitis . .	5	4	9	4	3	5	6	3	2	1	. .	. .	. .	1	. .	1	2	3	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	28	22
Abdominal Tuberculosis . .	1	3	5	2	1	2	5	5	2	4	. .	. .	1	1	. .	. .	1	. .	. .	1	1	2	. .	. .	. .	. .	. .	. .	17	20
Spinal Column	. .	. .	. .	. .	. .	. .	. .	. .	4	2	. .	. .	. .	. .	1	. .	. .	. .	1	1	. .	. .	. .	. .	. .	. .	. .	. .	6	3
Tuberculosis of Joints . .	. .	. .	1	. .	. .	. .	. .	1	. .	1	. .	. .	. .	. .	1	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	2	3
Tuberculosis of Genito-Urinary System . .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Tuberculosis of Larynx . .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Disseminated Tuberculosis	1	. .	3	2	2	. .	1	. .	. .	2	. .	. .	. .	1	. .	. .	2	. .	2	. .	3	. .	2	. .	. .	. .	1	. .	17	5
Tuberculosis of other Organs	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1	. .	. .	. .	1	1	. .	. .	. .	. .	1	. .	. .	. .	. .	1	3
TOTAL	8	9	21	13	9	7	20	13	18	15	1	4	16	22	27	25	38	41	58	41	40	16	18	3	4	. .	4	. .	282	209

N.B.—The above only includes those persons who were residents of and died in Newcastle-upon-Tyne.

Duration of Illness.—After every death from pulmonary tuberculosis enquiry was directed, where possible, to the length of time the deceased had been ill. The average duration of illness in such cases was found to be 29 months, as against 28 months in 1917, 27 months in 1916, 26 months in 1915, 26 months in 1914, 23 months in 1913 and 28 months in 1912.

Notification — Death Interval. — On the average the period between the date of notification and the date of death was 13.6 months. This is greater than in previous years, as is shown in the attached table.

CASES OF TUBERCULOSIS OF THE LUNGS, GIVING THE PERIOD BETWEEN THE DATE OF NOTIFICATION AND THE DATE OF DEATH.

Year.	No. of Deaths	Average period from the date of notification to the date of death. MONTHS.	Average period from the date of notification to the date of death : deducting cases not notified before death. MONTHS.	Number of deaths which occurred, that had not been notified before death.
1913	297	5.2	6.0	39
1914	351	6.5	7.7	57
1915	367	8.3	9.2	38
1916	388	9.5	10.3	27
1917	383	10.0	11.7	55
1918	364	13.6	16.7	67

As the average duration of illness was found to be 29 months, the figure 13.6 is far from satisfactory, because on the average each patient who died during the year must have been ill 15.4 months before notification.

As a result the majority of the cases are advanced when notified, and during the year 1918 no fewer than 50% of the persons dying from pulmonary tuberculosis had either not been notified prior to death (18.5%) or died within 3 months of notification (31.5%).

Comparative figures for previous years are submitted below :—

COMPARATIVE RETURN OF DEATHS FROM TUBERCULOSIS OF THE LUNGS OCCURRING IN :—

	Deaths which occurred in these years.						Total
	1913	1914	1915	1916	1917	1918	
Persons not notified	39	57	38	27	55	67	283
,, notified under 1 month .	36	28	46	42	26	42	220
,, between 1 and 3 months	71	92	98	113	97	73	544
,, ,, 3 ,, 6 ,,	49	54	47	61	56	27	294
Total under 6 months ..	195	231	229	243	234	209	1,341
Persons notified between 6 and 12 months..	57	49	37	43	47	50	283
,, 12 ,, 18 ,, ..	29	25	32	25	30	19	160
,, 18 ,, 24 ,, ..	14	12	21	14	17	20	98
,, 2 ,, 3 years ..	2	32	24	24	17	15	114
,, over 3 years ..	..	2	24	39	38	51	154
TOTAL	297	351	367	388	383	364	2,150

N.B.—The above deaths are those of persons who were residents of and died in Newcastle-upon-Tyne.

Occupation.—The nature of the work done and the conditions under which it is carried on have an important bearing on the incidence of tuberculosis, especially the pulmonary forms. The occupations of 320 persons who died during 1918 from phthisis were ascertained to be as under:—

Trade or Occupation.	M.	F.
Housewives	..	55
Labourers	28	1
Scholars	19	9
Housekeepers	..	10
Munition Workers	2	8
Clerks	7	3
Domestic Servants	..	9
Fitters and Turners	9	..
Shop Assistants	4	4
Under 5 years	5	3
Charwomen	..	8
Packers	1	6
No Occupation	2	5
Miners	6	..
Machine Men	6	..
Barmen	5	..
Platers' Helpers	5	..
Cartmen	4	..
Motormen	4	..
Engineers	3	..
Gaugers	2	1
Hawkers	2	1
Painters	3	..
Billiard Markers	2	..
Bricklayers	2	..
Compositors	2	..
Drapers	2	..
Firemen	2	..
Forge Helpers	2	..
Joiners	2	..
Laundresses	..	2
Pottery Workers	2	..
Plumbers	2	..
Riveters	2	..
School Teachers	..	2
Shoemakers	2	..
Stonemasons	2	..
Slingers	2	..
Tailors	2	..
Waitresses	..	2
Armature Winder	1	..
Butcher	1	..
Baker	1	..
Carried forward	148	129
Brought forward	148	129
Beltman	1	..
Book Sewer	..	1
Barmaid	..	1
Brushmaker	1	..
Brass Moulder	1	..
Cook	..	1
Chef	1	..
Cellarman	1	..
Craneman	1	..
Confectioner	..	1
Commission Agent	1	..
Commercial Traveller	1	..
Cable Operator	1	..
Dressmaker	..	1
Furnaceman	1	..
Grocer	1	..
Hairdresser	1	..
Horsekeeper	1	..
Hoisery Mounter	..	1
Lodging Housekeeper	..	1
Manager	1	..
Metal Dresser	1	..
Musician	1	..
Machinist	..	1
Messenger	1	..
Organ Builder	1	..
Pipemaker	1	..
Policeman	1	..
Printer	1	..
Platelayer	1	..
Rolleyman	1	..
Sailor	1	..
Ship Steward	1	..
Sheet Iron Worker	1	..
Sketcher	1	..
Shunter	1	..
Shipwright	1	..
Tailoress	..	1
Tinsmith	1	..
Wardmaid	..	1
Watchman	1	..
Wood Machinist	1	..
White Lead Worker	1	..
Total	181	139

21 of the above were also Ex-Service Men.

Family History.—It is well-known that phthisis is very apt to re-appear in families which have already suffered from its in-roads. In 132 instances amongst the 320 cases investigated after death, *i.e.*, in 41.25% there was a history that some near relation was suffering from or had died of pulmonary tuberculosis.

The figures correspond closely with those of previous years, which are submitted herewith :—

DEATHS FROM TUBERCULOSIS : GIVING THE NUMBER OF CASES WHO HAD RELATIONS WHO DIED, OR WHO ARE ILL WITH TUBERCULOSIS.

Year.	No. of enquiries. Tuberculosis of Lungs.	No. of cases who had relations with Tuberculosis of the Lungs.	Percentage to No. of enquiries
1913	251	82	32.66
1914	313	132	42.17
1915	353	158	44.75
1916	339	148	43.0
1917	355	144	40.56
1918	320	132	41.25

It is interesting to note that the children of phthisical parentage when affected with pulmonary tuberculosis die, on the average, at a considerably earlier age than the consumptive parent.

This was not so marked in the year under review as will be seen in the accompanying table :—

AVERAGE PERIOD OF LIFE OF PERSONS, ONE OR BOTH OF WHOSE PARENTS DIED OF PULMONARY TUBERCULOSIS, AS COMPARED WITH THOSE WHO HAD NO SUCH HISTORY.

Year.	No. of cases where enquiries were made of Tuberculosis of the Lungs.	No. of cases where parent had died of Tuberculosis of the Lungs.	Average period of life of same in years.	No. of cases where parent had not died of Tuberculosis of the Lungs.	Average period of life of same in years.
1913	251	26	24	225	34
1914	313	48	25.5	265	32
1915	353	56	26	297	33
1916	339	51	24.5	288	32.79
1917	355	48	27	307	33
1918	320	44	29	276	32.5

House Accommodation.—The home conditions of the working classes are intimately associated with occupation and family history as predisposing to tuberculosis.

The numbers of rooms in the dwellings occupied by 320 persons who died of tuberculosis of the lungs were as follows :—

Size of Holding (Rooms).	Number of Houses.	Number of Occupants.	Average No. of Occupants per Room.
1	33	84	2.54
2	92	450	2.45
3	91	477	1.75
4	58	340	1.46
5	18	92	1.02
6	11	57	0.86
7	8	47	0.84
8	6	34	0.71
9	1	6	0.66
10	2	12	0.60
Total ..	320	1,599	1.57

As regards the type of house occupied, 162 were flats, 91 tenements, 61 self-contained, and 6 common lodging-houses.

The number of individuals resident in the houses occupied by the above-mentioned 320 deceased persons is shown in the following table :—

Rooms in Dwelling	1	2	3	4	More than 4	Common Lodging Houses.	Total.
Deaths ..	27	92	91	58	46	6	320

Deaths in Institutions.—49 Newcastle residents died of phthisis, in the Union Infirmary, and 30 in the phthisis pavilions at Walker Gate.

There can be no doubt that the increased use of such hospitals by patients in the later stages of consumption is likely to have a good effect upon the mortality from tuberculosis, especially amongst children, for while the sufferer is well cared for the dependants are freed from further risk of massive infection and are better able to earn sufficient money to provide the necessaries of life.

WARD DISTRIBUTION OF TUBERCULOSIS.

Considerable interest attaches to the prevalence of tuberculosis in the various wards of the city, and a table has been prepared showing, for each ward, the estimated populations, the number of notifications and deaths, together with the rates per thousand. Further, it has been thought convenient to incorporate in this return the number of insured persons who have applied for "Sanatorium Benefit," the number enrolled on the Dispensary Register, and the number of persons whose sputum has been examined during the year and found to contain tubercle bacilli, that is to say, the number of new definite sources of infection discovered.

It is apparent at once from the table that the death rate per thousand population (which in the case of tuberculosis is of far more practical value than the notified incidence per thousand) is much higher in the poorer and congested wards than in those enjoying more favourable conditions, and also that the largest number of infective foci are found in those quarters in which it is most difficult to prevent the spread of infection.

WARD DISTRIBUTION OF TUBERCULOSIS, 1918.

WARD.	Population estimated on Registrar General's figures for 1915.	NOTIFICATIONS.						DEATHS.						Application for Sanatorium Benefit.	Persons on Dispensary Register.	Sputa examined with positive result.
		Pulmonary.	Attack rate per 1,000 of population.	Non-Pulmonary.	Attack rate per 1,000 of population.	TOTAL.	Attack rate per 1,000 of population.	Pulmonary.	Death rate per 1,000 of population.	Non-Pulmonary.	Death rate per 1,000 of populaton.	TOTAL.	Death rate per 1,000 of population.			
St. Nicholas' ..	3,656	10	2.73	1	0.27	11	3.00	6	1.64	1	0.27	7	1.91	5	14	8
St. Thomas' ..	14,449	14	0.97	8	0.55	22	1.52	8	0.55	5	0.35	13	0.90	2	24	11
St. John's	15,725	35	2.23	15	0.95	50	3.18	25	1.59	7	0.44	32	2.03	17	63	25
Stephenson ..	19,205	33	1.72	17	0.88	50	2.60	25	1.30	11	0.57	36	1.87	11	58	20
Armstrong	16,003	28	1.75	8	0.50	36	2.25	17	1.06	1	0.06	18	1.12	11	43	18
Elswick	12,955	24	1.85	8	0.62	32	2.47	16	1.23	6	0.46	22	1.69	11	27	16
Westgate	15,635	25	1.59	12	0.77	37	2.36	18	1.15	6	0.38	24	1.53	11	37	17
Arthur's Hill ..	11,704	17	1.45	9	0.77	26	2.22	14	1.19	5	0.43	19	1.62	5	13	12
Benwell	18,010	38	2.11	26	1.44	64	3.55	22	1.22	10	0.55	32	1.77	22	52	25
Fenham	11,301	23	2.03	9	0.80	32	2.83	12	1.06	6	0.53	18	1.59	5	17	15
All Saints	18,130	63	3.47	20	1.10	83	4.57	54	2.98	10	0.55	64	3.53	19	89	35
St. Andrew's ..	12,783	44	3.44	15	1.17	59	4.61	20	1.56	12	0.94	32	2.50	21	68	29
Jesmond	11,317	14	1.24	4	0.35	18	1.59	3	0.26	3	0.26	6	0.52	2	8	14
Dene	12,478	19	1.52	3	0.24	22	1.76	10	0.80	1	0.08	11	0.88	10	20	11
Heaton	15,877	19	1.19	17	1.07	36	2.26	20	1.26	6	0.38	26	1.64	6	38	17
Byker	17,904	38	2.12	27	1.51	65	3.63	26	1.45	14	0.78	40	2.23	14	95	25
St. Lawrence ..	18,343	42	2.29	18	0.98	60	3.27	27	1.47	8	0.43	35	1.90	22	97	28
St. Anthony's ..	16,165	32	1.98	26	1.61	58	3.59	26	1.61	7	0.43	33	2.04	17	86	19
Walker	16,467	34	2.06	24	1.45	58	3.51	15	0.91	8	0.48	23	1.39	15	55	17
City	278,107	552	1.98	267	0.96	819	2.94	364	1.31	127	0.45	491	1.76	226	904	362

NOTE.—Deaths occurring in Public Institutions, have been allocated in every case to the Wards in which they resided.
The figures relating to deaths only include those persons who were residents of and died in Newcastle-upon-Tyne.

THE TUBERCULOSIS DISPENSARY.

904 new patients were entered on the Dispensary Register during the year, comprising 377 "insured persons," 423 dependents of "insured persons," and 104 who were "uninsured."

Many of these were contacts, and of the total 221 (equal to 25 per cent.) were first discovered to be suffering from tuberculosis by the Tuberculosis Medical Officer, a considerable proportion being fairly advanced cases and active sources of infection, expectorating tubercle bacilli in their sputum.

In the following return the new entrants are classified under various headings, the figures for previous years being given for comparison :—

Persons on Dispensary Register under the following Headings.

Year.	Number on Dispensary Register.	Insured.	Dependents.	Uninsured.	Notified by Medical Practitioners.	Notified by T.M.O.	Contacts and Suspects.
*1913	729	299	318	112	457	140	132
1914	1046	388	499	159	396	180	470
1915	899	297	484	118	286	146	467
1916	850	306	438	106	288	162	400
1917	969	361	504	104	243	244	482
1918	904	377	423	104	193	221	490
TOTAL	5397	2028	2666	703	1863	1093	2441

* From March 17th.

These cases were derived from various sources, but it is noteworthy that practically 50 per cent. were referred to the Dispensary by the general practitioners of the city or the school medical officers, as is seen in the subjoined table :—

RECOMMENDED BY	1914	1915	1916	1917	1918
Medical Practitioners	227	200	230	301	299
Dispensary Nurses	438	397	270	162	103
School Medical Officers	101	57	88	145	144
Came of own accord	211	131	102	80	98
Lady Almoner, Royal Victoria Infirmary	24	31	75	107	70
Insurance Committee	15	4	15	13	57
Friends of Patients	11	21	24	35	37
Tuberculosis Medical Officer	10	16	11	14	20
Charity Organisation Society ..	5	6	1	1	4
Poor Children's Holiday Association ..	2	2	3	4	5
Superintendent of Midwives and Health Visitors	2	14	6	7	7
Military Authorities	..	..	19	68	22
War Pensions Committee	..	..	..	17	34
War Relief Fund	..	..	..	11	2
Other Sources	..	20	6	4	2
TOTAL ..	1046	899	850	969	904

In addition 10 new cases, residing outside Newcastle, were referred to the Tuberculosis Medical Officer by the Ministry of National Service

The number of attendances at the Dispensary for consultation with the Tuberculosis Medical Officer was 11,517, as compared with 9,286 in 1917, 7,758 in 1916, 6,473 in 1915, 6,712 in 1914.

In addition to the ordinary routine work, certificates were given to 28 persons who had been referred to the Tuberculosis Medical Officer by the Ministry of National Service for a special report as to the presence or otherwise of tuberculosis. Of the above number 9 were non-residents of Newcastle-upon-Tyne.

The Work of the Nurses.—With few exceptions every individual notified as suffering from tuberculosis of the lungs is visited by one of the Dispensary nurses.

In all 463 new patients were seen and 9,668 subsequent visits were made, giving a grand total of 10,131 visits for the year.

Special attention is paid to those persons who are known to have tubercle bacilli in their sputum. They are visited at least once monthly, and the number of those under supervision on various dates is shown in the following return :—

Dec. 31, 1915	400
June 30, 1916	423
Dec. 31, 1916	455
June 30, 1917	468
Dec. 31, 1917	486
June 30, 1918	515
Dec. 31, 1918	529

The main object of these visits is to see that the patient is carrying out, in every detail, the instructions of the doctor in attendance, more especially with regard to the prevention of the spread of infection to other members of the household.

The nurse can often give good advice on home nursing, the improvisation of a separate bed for the sufferer, the preparation of simple and inexpensive articles of diet, and kindred subjects.

At the same time encouragement is given to those who have been treated in Sanatoria and Hospitals to continue to observe the rules for the preservation of their health and prevention of infection of others which they learned whilst receiving institutional treatment.

Enquiry is also directed to the health of contacts, and any who are ailing are urged to see their own doctor, if they have one, or to come to the Dispensary for examination.

In this way a large number of unrecognised cases of tuberculosis has been discovered, especially amongst children.

The nurses report to the Tuberculosis Medical Officer every morning upon the previous day's work, special mention being made, in the case of new patients, of the number and relation of the inmates of the house occupied, the number of rooms in the house, the sleeping arrangements of the patient, and any obvious sanitary defects, *e.g.*, improper ventilation or bad drainage.

The Work of the Sanitary Inspector.—This officer disinfects houses after deaths or changes of address of consumptives, arranges for the removal and disinfection of phthisical patients' clothing and bedding, and reports on any insanitary conditions existing in the homes of dispensary patients, such as overcrowding, insufficient ventilation, or defective sanitary arrangements.

The details of his work were as follows :—

Houses visited	504
Houses disinfected (total)	504
For patients going to Sanitoria	80
,, ,, changing their address	10
,, ,, changing their rooms	3
,, ,, going to Hospital	134
After death	277
Rooms disinfected in above houses	557
Total number of visits	933
Houses found to have sanitary defects (including overcrowding) and referred to the Inspector of Nuisances	22

Bacteriological Examination of Sputum.—Every effort is made to verify each notified case by bacteriological means, and during the year 1080 specimens of sputum were examined at the Dispensary.

Of this number 233 were found to contain tubercle bacilli while 847 gave negative results.

In addition 529 samples of sputum were sent for examination to the College of Medicine by the medical practitioners of the city.

Of these 129 proved positive and 400 negative.

The following table shows the division into age periods of the persons in whose sputa the specific germs were demonstrated :—

AGE PERIODS OF PERSONS WHOSE SPUTA, ON EXAMINATION, PROVED TO CONTAIN TUBERCLE BACILLI.

	Under 5 years	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and Upwards	TOTAL
College of Medicine—Males	..	..	..	4	5	12	31	15	2	2	71
College of Medicine—Females	..	..	..	8	8	17	17	8	..	..	58
Tuberculosis Dispensary—Males	..	1	6	13	16	47	54	19	5	2	163
Tuberculosis Dispensary—Females	..	1	3	17	12	15	14	8	..	..	70
TOTAL	..	2	9	42	41	91	116	50	7	4	362

INSTITUTIONAL TREATMENT.

Under the Combined Scheme 30 beds (of which 20 are reserved for "insured" persons) were provided at Barrasford Sanatorium for early or moderately advanced adult cases of pulmonary tuberculosis, 62 beds were available for more advanced cases in the Sanatorium Pavilions at the City Hospital, Walker Gate, while at Stannington Sanatorium 30 beds were maintained for the treatment of tuberculous children.

Owing to the increase in the number of patients requiring Sanatorium Treatment 10 additional beds were acquired at Barrasford Sanatorium on December 9th, 1918, and an arrangement was made whereby a further 5 beds would be at the disposal of the Newcastle-upon-Tyne Corporation if and when required.

BARRASFORD SANATORIUM.

The beds were continuously occupied and 89 persons completed treatment during the year.

The details as to "insured" and "uninsured" persons, males and females, together with the average length of stay in the institution, are submitted herewith :—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM DURING YEAR 1918.

	In Barrasford Sanatorium on 1st January. 1918.	Ad-mitted during year.	Persons who completed treatment during year.			In Barrasford on 31st Dec. 1918.
			Number	Total Number of days.	Average Length of Stay in days.	
Uninsured Males ..	3	7	9	1,267	140	1
Uninsured Females	2	5	6	925	154	1
Insured Males ..	24	74	72	9,377	130	26
Insured Females ..	1	9	2	357	178	8
TOTAL ..	30	95	89	11,926	134	36

The results of treatment were satisfactory, and the condition of the patients on discharge is as follows :—

RESULTS.	Males.	Females.	Total.
(*a*) Fit to work	61	6	67
(*b*) Improved	15	2	17
(*c*) Without Improvement	5	..	5
(*d*) Worse..	..	..	..
TOTAL	81	8	89

As beds have been maintained at this institution by the Corporation since the end of 1908 the comparable figures for each year are given :—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM AND THEIR CONDITION ON DISCHARGE.

Year Discharged.	Number of Patients Discharged.	MALES.	FEMALES.	Condition on Discharge.			
				Fit to Work.	Improved.	Without Improvement.	Worse.
*1909	55	34	21	32	18	4	1
1910	64	41	23	35	22	6	1
1911	71	45	26	40	21	9	1
1912	67	47	20	39	19	8	1
1913	85	58	27	41	38	5	1
1914	78	59	19	71	3	4	..
1915	74	54	20	56	13	5	..
1916	64	45	19	38	23	3	..
1917	68	45	23	43	18	5	2
1918	89	81	8	67	17	5	..
TOTAL ..	715	509	206	462	192	54	7

* NOTE.—No patient completed treatment during 1908.

Each discharged patient is visited at frequent intervals by one of the Dispensary staff and is encouraged to report periodically so that he can be examined and records kept of his condition.

In the next table a summary is given of the condition on December 31st, 1918, of all the patients treated at the Corporation expense since 1908. It will be noticed that most of the earlier cases are returned as dead or untraceable :—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM AND THE RESULTS.

YEAR.	Number of Patients discharged from Barrasford Sanatorium.	MALES.	FEMALES.	Condition at end of Year 1918.					Total number of days in the Sanatorium.	Average number of days in the Sanatorium.
				Well, working or fit to work.	Improved or moderately well.	Relapsed.	Dead.	Lost sight of, or left the district.		
1909	55	34	21	5	6	. .	33	11	6,260	114
1910	64	41	23	8	3	1	37	15	6,471	101
1911	71	45	26	11	4	1	46	9	6,868	97
1912	67	47	20	10	5	. .	37	15	5,396	81
1913	85	58	27	23	5	2	40	15	9,567	112
1914	78	59	19	31	6	2	31	8	9,723	124
1915	74	54	20	30	10	5	19	10	10,803	146
1916	64	45	19	25	5	5	22	7	10,005	156
1917	68	45	23	31	16	1	14	6	10,603	156
1918	89	81	8	57	20	6	5	1	11,926	134
TOTAL..	715	509	206	231	80	23	284	97	87,622	122
Received treatment in previous years.	29	18	11	7	6	1	13	2	—	—
Nett Cases	686	491	195	224	74	22	271	95	87,622	122

22 of the above joined H.M. Forces. Of these two have been killed in action.

29 patients received a second spell of treatment, the details of which are shown below.

The results are not satisfactory and go to show that if a patient has a second breakdown the outlook is very serious.

RECEIVED TREATMENT IN PREVIOUS YEARS.

Year of Discharge.	Number of Patients discharged from Barrasford Sanatorium.	MALES.	FEMALES.	Condition at the end of Year, 1918.				
				Well, working or fit to work.	Improved or moderately well.	Relapsed.	Dead.	Lost sight of, or left the district.
1911	5	2	3	..	1	..	4	..
1912	4	3	1	..	..	..	3	1
1913	4	1	3	..	2	..	1	1
1914	4	3	1	2	..	..	2	..
1915	1	1	..	..	..	..	1	..
1916	1	..	1	..	1	..	..	..
1917	4	3	1	1	1	..	2	..
1918	6	5	1	4	1	1	..	..
TOTAL ..	29	18	11	7	6	1	13	2

While the appearance of tubercle bacilli in the sputum indicates that there is active destruction of lung tissue still it must be recognised that there is always a doubt about any case in which the diagnosis has not been verified bacteriologically.

Accordingly the bacterial history of each patient admitted to Barrasford Sanatorium has been investigated as thoroughly as possible and the results are tabulated below :—

BACTERIAL HISTORY OF
PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM.

YEAR.	Persons discharged from Barrasford Sanatorium.			Number who had Tubercle Bacilli found in the Sputum after discharge.	Persons deceased at the end of the year.				Cases who had Tubercle Bacilli in the Sputum and could not be traced at end of Year.
	TOTAL Nett Cases.	Number who had Tubercle Bacilli found in the Sputum.	Number who had **not** Tubercle Bacilli found in the Sputum.		TOTAL.	Tubercle Bacilli found in the Sputum before or during treatment.	Tubercle Bacilli **not** found in the Sputum before or during treatment.	Tubercle Bacilli found in the Sputum after discharge.	
1909	55	35	20	2	33	28	4	1	2
1910	64	46	18	3	37	31	4	2	9
1911	66	44	22	5	42	34	4	4	5
1912	63	36	27	10	34	26	4	4	7
1913	81	54	27	3	39	31	5	3	9
1914	74	52	22	1	29	28	1	. .	4
1915	73	51	22	3	18	15	1	2	6
1916	63	49	14	3	22	19	1	2	5
1917	64	42	22	3	13	11	2	. .	4
1918	83	55	28	1	5	5	. .	. .	. .
TOTAL	686	464	222	34	272	228	26	18	51

It is at once obvious from the above that the prognosis is very much more grave in the "bacillary" cases than in those who had a "negative" sputum throughout.

STANNINGTON SANATORIUM.

The 30 beds were kept fully occupied throughout the year and 49 patients completed treatment.

The details appear below :—

Children who received treatment in Stannington Sanatorium during the year 1918.

	In Sanatorium on 1st Jan. 1918.	Admitted during the year.	Persons who completed treatment during the year.			In Sanatorium on 31st Dec., 1918.
			Number.	Total number of days.	Average length of stay in days.	
Males	17	25	26	5252	202	16
Females.. ..	13	23	23	6641	289	13
Total ..	30	48	49	11893	243	29

In nearly every case great benefit accrued to the patient as is shown in the following return :—

	Males	Females	Total.
(*a*) Much Improved	23	20	43
(*b*) Improved	1	2	3
(*c*) Without Improvement	1	1	2
(*d*) Worse	1	..	1
Total	26	23	49

SANATORIUM PAVILIONS, WALKER GATE.

There has been great demand for the beds provided here, and of the 207 patients admitted 97 were men discharged from the services suffering from tuberculosis.

Of the above number 59 were pensioners residing in other districts, and the expenses of their maintenance were defrayed by the authorities responsible for their admission. Further details regarding the patients treated during the year are given in the accompanying table :—

TUBERCULOSIS SECTION.

Monthly Summary of Work Done in 1918 and Totals in 1913–1917.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total for 1918	Total for Year.				
														1917	1916	1915	1914	1913
Notifications Total	69	86	62	89	116	69	58	71	40	68	31	60	819	909	987	964	958	1246
Lungs	46	54	41	52	76	47	43	53	31	46	26	37	552	590	642	612	665	796
Other Forms	23	32	21	37	40	22	15	18	9	22	5	23	267	319	345	352	293	450
Notified by T.M.O. ..	21	25	17	32	27	11	16	14	19	14	18	7	221	244	162	146	180	140
Deaths : .. 531 Total	50	40	37	30	43	40	48	46	24	39	41	52	491	530	523	529	507	452
Lungs .. 393 ..	40	26	28	25	32	29	39	27	15	26	35	42	364	383	388	367	351	297
Other Forms 138 ..	10	14	9	5	11	11	9	19	9	13	6	11	127	147	135	162	156	152
Attendances at Dispensary :	835	1105	1051	1148	1073	898	915	1008	957	1031	793	703	11517	9286	7758	6473	6712	3656
New Patients	74	92	83	99	102	77	90	60	73	75	41	38	904	969	850	899	1046	729
†Military Cases	..	1	..	1	1	2	3	..	2	..	..	..	10	35	10	..	..	..
Barrasford Sanatorium.																		
Admitted	2	5	9	5	7	7	5	14	6	7	17	11	95	69	67	70	78	86
Discharged	2	6	11	2	7	9	4	13	6	7	17	5	89	68	64	74	78	86
Stannington Sanatorium.																		
Admitted	6	6	7	3	7	1	4	4	1	5	4	..	48	55	74	65	78	17
Discharged	6	6	6	4	7	1	4	4	1	5	4	1	49	55	73	65	55	11
Sanatorium Pavilions, Walker Gate.																		
Admitted	8	11	12	24	16	24	21	15	31	10	13	22	207	181	146	54	40	38
Discharged	5	6	11	9	8	10	15	29	13	15	19	11	151	138	89	38	27	16
Died	5	1	3	1	0	2	2	3	2	2	5	4	30	48	26	17	14	8
Bacteriological Exams.																		
College of Medicine Total	39	51	55	57	54	40	51	38	35	36	34	39	529	604	624	600	714	910
Positive Sputa ..	15	15	9	14	9	10	12	5	10	14	7	9	129	159	172	147	202	207
Negative Sputa ..	24	36	46	43	45	30	39	33	25	22	27	30	400	445	452	453	512	703
Dispensary : .. Total	57	92	92	86	94	84	93	95	108	80	106	93	1080	957	708	608	764	354
Positive Sputa.. ..	16	18	14	19	21	14	20	24	26	19	23	19	233	204	146	140	182	85
Negative Sputa ..	41	74	78	67	73	70	73	71	82	61	83	74	847	753	562	468	582	269
Urine	57	76	68	77	96	79	70	54	78	75	42	40	812	806	681	272	..	..
Evening Consultations.																		
Attendances	106	133	112	137	140	110	143	128	127	141	87	91	1455	1264	1180	1124	1000	546
New Patients	4	9	4	8	3	9	6	2	2	5	2	3	57	84	96	128	130	59
Work of Nurses.																		
New Patients	42	48	37	40	66	43	38	35	29	39	26	20	463	336	505	1055	1306	799
Subsequent Visits ..	1129	1055	577	724	686	596	493	604	883	1007	932	982	9668	6188	7515	5429	6444	1235
Total Visits	1171	1103	614	764	752	639	531	639	912	1046	958	1002	10131	6524	8020	6484	7750	2014
East District	371	409	227	..	..	..	123	370	416	427	326	324	2993	2530	4050	3323	3729	..
West District	470	447	387	451	425	361	155	223	423	417	402	338	4499	3777	3970	3161	3921	..
Central District ..	330	247	..	313	327	278	253	46	73	202	230	340	2639	217	..	..	..	..
Special Inspector's Visits.	88	75	80	83	100	91	105	100	60	56	75	120	933	1110	1070	1400	2385	1835
Houses Disinfected ..	41	34	39	39	49	45	52	46	26	38	37	58	504	554	537	512	549	514
Rooms Disinfected ..	49	38	40	45	53	58	63	47	29	32	40	63	557	701	619	779	1077	1089
Sanitary Defects— Houses..	5	3	1	1	1	2	2	2	1	1	1	2	22	34	17	23	48	71

Note.—The figures relating to deaths only include those persons who were residents of and died in Newcastle-upon-Tyne.

† Residing outside of Newcastle, referred to T.M.O. by Ministry of National Service.

W. H. Dickinson, M.B., D.P.H.,
Tuberculosis Medical Officer.

Tuberculosis Dispensary,
May, 1919.

PATIENTS WHO RECEIVED TREATMENT IN SANATORIUM PAVILIONS AT THE CITY HOSPITAL, WALKERGATE, DURING YEAR 1918.

	Patients in Hospital on 1st Jan., 1918.	Patients admitted.	Patients who have completed treatment.			In Hospital 31st Dec., 1918.
			Number.	Total number of days.	Average length of stay in days.	
Uninsured, Male ..	9	21	21	3448	164	9
,, Female	7	22	21	1794	81	8
Insured, Male ..	17	145	129	8730	68	33
,, Female ..	5	19	20	2621	131	4
TOTAL ..	38	207	191	16593	87	54

N.B.—One patient was re-admitted and is counted as two admissions.

The results of treatment where completed are as follows :—

	Males.	Females.	Total.
(*a*) Fit to Work	27	6	33
(*b*) Improved	53	19	72
(*c*) Without Improvement ..	36	10	46
(*d*) Died in Hospital	34	6	40
TOTAL	150	41	191

13 patients were transferred to Barrasford Sanatorium.

Of the 40 patients who died in the institution 30 were Newcastle residents, 7 were pensioners from other districts, while the remaining 3 were Serbian soldiers who had been brought to the Tyne from Russia.

The various activities of the Tuberculosis Section have been summarised and are set out on the following page.

For the year 1918 the monthly figures are given, while in addition the total for the whole year is shown together with the corresponding totals in the past.

It will be noted that there is a marked increase in nearly every item except under the headings of Notifications and Deaths.

DISINFECTION.

2,512 cases of notifiable and 417 of non-notifiable infectious disease have been inquired into by the Infectious Disease Inspectors and Health Visitors, and, with the exception of measles, the houses or rooms connected therewith disinfected by spraying with formalin. The Lord Mayor's Information Bureau (Saville Row) was disinfected 104 times. In connection with cases of tuberculosis, 504 houses, including 557 rooms, were similarly disinfected. Spraying outfits are also lent to military units requiring them for use in quarters and billets.

In all cases amongst civilians, except measles, the bedding and other infected articles were removed to the Disinfecting Station at the City Hospital, Walker Gate, and after sterilisation by steam returned to the owners.

Inquiries were also made in connection with 28 smallpox and 44 cerebro-spinal fever contacts. These persons were kept under observation until the possible incubation period was over.

120 of convalesents from malaria and dysentry were visited.

350 extra visits of supervision to the cases left at home were made by the Infectious Diseases Inspectors.

Infected Articles Purified in the Disinfecting Apparatus at the City Hospital for Infectious Diseases, Walker Gate, and the Isolation Hospital, Town Moor.

ARTICLES FROM CITY.		ARTICLES—HOSPITAL PROPERTY.	
1918.	1917.	1918.	1917.
17,332	18,040	7,392	2,415

The above list includes only civilian work. In addition the following articles from military billets and camps were disinfected :—

ARTICLES DISINFECTED FOR MILITARY AUTHORITIES.

DESCRIPTION.	TREATED AT		
	City Hospital.	Moor Hospital.	TOTAL.
Kits and Bags	404	..	404
Blankets	4,431	7,397	11,828
Other Articles of Bedding and Wearing Apparel, etc.	571	594	1,165
Horse Rugs and Saddle Blankets	..	1,567	1,567
TOTAL	5,406	9,558	14,964

3,089 articles of various kinds from the S.S. "Porto" and "Czar" were also disinfected.

The staff have thus dealt with 42,767 articles at the two disinfectors during the year.

INFECTED ARTICLES DESTROYED AND REPLACED BY THE HEALTH DEPARTMENT.

	1918.	1917.
Half Straw Mattresses	18	20

The sum of £1 was paid for loss of work on account of exposure to infection.

Fluid disinfectant, in half-pint tins, and disinfectant soap, in pound bars, were given out free on the order of the special inspectors, for home use in connection with infectious disease. Every precaution was taken to ensure that the material so dispensed was properly and economically used.

DISINFECTANTS DISTRIBUTED—1918.

FROM	FOR INFECTIOUS DISEASES		FOR PHTHISIS
	FLUID (½ pint tins.)	SOAP (1 lb. bars.)	FLUID (½ pint tins.)
Health Department..	164	80	..
Tuberculosis Dispensary	..	..	100
Corporation Yard, Benwell	44	28	..
TOTAL	208	108	100

BACTERIOLOGICAL INVESTIGATIONS, 1918.

The following is a summary of the bacteriological investigations carried out on behalf of the Health Department of the Newcastle Corporation by Professor H. J. Hutchens at the University of Durham College of Medicine, Newcastle.

REPORT.

3,283 specimens were submitted for examination. The nature of the investigations, and the results obtained were as follows:—

	DIPHTHERIA			TUBERCULOUS PHTHISIS			ENTERIC FEVER		
	Total.	Positive.	Negative.	Total.	Positive.	Negative.	Total.	Positive.	Negative.
No. of Examinations ..	668	128	540	529	131	398	64	12	52

Milk Examinations:—	TOTAL.	FOUND.	NOT FOUND.
1. For tubercle bacilli ..	103	3	100

2. Bacterial contents of organisms other than tubercle bacillus (the colon bacillus being taken as the indicator.)

Colon bacilli not found in 1 cc. or less	2
Colon bacilli found in 1 cc. but not in less ..	14
Colon bacilli found in 0·1 cc. but not in less ..	16
Colon bacilli found in 0·01 cc. but not in less ..	33
Colon bacilli found in 0·001 cc. but not in less..	131
	196

Water Examinations :—

Class I.	(Colon bacilli not found in 100 cc. or less) ..	10
Class II.	(Colon bacilli found in 100 cc. but not in less) ..	45
Class III.	(Colon bacilli found in 10 cc. but not in less) ..	64
Class IV.	(Colon bacilli found in 1 cc.)	34
	TOTAL ..	153

Venereal Diseases :—

	Wassermann re-actions	Microscopical Examinations	
		Gonococci	Other Exams.
No. of Examinations	1,482	22	12

Other Examinations :—

a A sample of condensed milk 1

This was found to be quite satisfactory.

b Cerebro-spinal fever.

10 suspected cases were examined—9 were negative and 1 was positive 10

18 contacts were examined, of these 5 were found to be infected 18

c Typhoid carriers :—Six cases were examined which were regarded as possibly infected. In no case was the typhoid bacillus recovered 6

d Dysentery carriers :—Similarly one suspected case of a dysentery carrier was examined, but no dysentery bacilli were found 1

e Some samples of milk were examined to determine the effect of pasteurization. A detailed report on these results was sent when the experiments were completed 18

H. J. HUTCHENS, *Bacteriologist.*

24*th February,* 1919.

REPORTS OF THE
VETERINARY OFFICER AND INSPECTOR
OF PROVISIONS, AND OF THE
INSPECTOR UNDER THE FOOD AND DRUGS
ACTS (INSPECTOR OF NUISANCES).

IV—FOOD.

BOVINE TUBERCULOSIS,
INSPECTION OF MEAT AND PROVISIONS,
INSPECTION OF FOOD AND DRUGS.

BOVINE TUBERCULOSIS, AND THE INSPECTION OF MEAT AND PROVISIONS AND FOOD AND DRUGS.

TUBERCULOUS MILK.—1918.

During the year 3 samples of milk were reported to contain Tubercle Bacilli. The sources of supply were respectively Ayrshire, Dumfriesshire, and Cumberland. The sample from Ayrshire was from the mixed milk of a large creamery, and the investigation involved the examination of 788 cows on 34 different farms. 9 cows in all were found clinically tuberculous, and were removed from the herds concerned.

In the other two cases 4 cows at each of the farms were found diseased and were suitably dealt with. Check samples from the herds after the removal of the tuberculous cows were found not to contain Tubercle Bacilli.

INSPECTION OF MEAT AND PROVISIONS.

Report of the

Veterinary Officer, Inspector of Meat, etc.

To the Medical Officer of Health.

Sir,

I have the honour to present this, my Twelfth Annual Report, viz., that for the year ending December 31st, 1918.

DISEASES OF ANIMALS ACTS, 1894-1914.

During the year 19 outbreaks of contagious disease (as defined by the Acts) have occurred amongst the animals within the City, as compared with 27 during the previous year.

THE DAIRIES, COWSHEDS, AND MILK SHOPS ORDERS, 1885-1899.

Within the City there are 29 cowkeepers, who occupy 43 cowsheds on 31 premises, and possess a total of 622 milch cows. During the year 178 visits have been made to the cowsheds and dairies for the purpose of inspecting the buildings, etc., as to defects, sanitation and general cleanliness. The presence of Tuberculosis as affecting the udders of dairy cattle, is invariably detected by means of a clinical examination which, in many cases, is confirmed by drawing from the suspected quarter samples of milk and, after preparation, examining the latter microscopically, all of which occupies considerable time. It has not, during the year under report, been found possible to give this section of the work the attention its importance demands, on account of the great increase in the number of diseased carcasses of beef and other unsound foodstuffs, requiring individual attention, *e.g.*, when the inspectors during routine inspection, detect or have their attention drawn to diseased carcasses they are inspected and if without doubt totally unfit, are dealt with accordingly. In most cases, however, the carcases are detained and finally examined by the Veterinary Inspector with a view to determining whether or not the condition present warrants condemnation of the whole or part of the carcass and organs.

Tuberculosis is also dealt with on page 132 in connection with the subject of meat inspection.

Table No. 1.

Year.	Diseased Cows Found in Registered Premises within the City.								
	No. of Cowkeepers.	No. of Registered Cowsheds.	No. of Dairy Premises.	No. of Milch Cows in City.	Number of Diseased Cows.				
					Tuberculosis.		Other Diseases.		Destroyed
					Of Udder.	Other than Udder.	Udder.	Other than Udder.	
1908	43	—	—	528	3	7	4	1	6
1909	41	—	—	527	5	2	4	1	5
1910	38	41	—	503	1	1	8	—	1
1911	37	44	38	497	1	—	4	—	1
1912	37	44	37	465	2	—	1	—	—
1913	31	43	33	489	2	2	—	—	—
1914	31	43	33	510	1	1	1	—	—
1915	31	43	33	554	3	—	6	—	—
1916	30	44	32	536	2	2	12	—	1
1917	30	44	32	512	1	—	—	—	—
1918	29	43	31	622	—	—	—	—	—

SWINE FEVER AND INFLUENZA.

During the Autumn of 1918, alarming reports went broadcast to the effect that many cases of Influenza in the human subject had been pronounced and treated as Swine Fever. Many people were led to believe that the disease was due to eating bacon. The public, however, may with safety dismiss such reports as unreliable, for Swine Fever—a disease peculiar to the pig—is not communicable to human beings.

ANIMALS SLAUGHTERED FOR FOOD.

During the year 1918, 131,728 animals were slaughtered within the City, as compared with 156,895 slaughtered the previous year. The following table illustrates the number of animals slaughtered within the City during the past 3 years :—

NUMBER OF ANIMALS SLAUGHTERED ON LICENSED PREMISES WITHIN THE CITY.

TABLE NO. 2.

YEAR, 1918.				YEAR, 1917.	YEAR, 1916.
	Horses..		714	487	500
CATTLE	Cows ..	2,028	18,379	26,333	25,365
	Heifers	8,845			
	Bulls ..	333			
	Bullocks	7,173			
	Calves..		2,412	1,989	—
SHEEP	Tups ..	1,759	100,488	112,417	113,087
	Ewes ..	12,951			
	Other Sheep	51,234			
	Lambs..	34,544			
SWINE	Boars ..	140	9,735	15,669	21,500
	Sows ..	439			
	Other Pigs	9,156			
	Total Animals ..		131,728	156,895	160,452

MEAT, PROVISIONS, FISH, FRUIT, etc.

During the year 1918 a total of 411¾ animal carcasses, together with 8 tons 3 qrs. 21 lbs. of meat were condemned within the City and destroyed as being unfit for human consumption, as compared with 140 animal carcasses and 6 cwts. 3 qrs. 19 lbs. of meat during the previous year.

Of the 411¾ carcasses, 187¼ (176 carcasses and 45 quarters) were condemned on account of tuberculosis, as compared with 92 (85 carcasses and 28 quarters) the year previous.

Again, of the total number of carcasses, parts of carcasses, and organs condemned as unfit during the year, tuberculosis was found to be the cause in 228 cases, as shown in the following table :—

CARCASSES AND ORGANS FOUND TUBERCULOUS.—1918.

TABLE NO. 3.

Total Found Tuberculous.		Entire Carcasses Condemned.	Parts or Organs Condemned.
Bulls	5	3	2
Cows	142	115	27
Bullocks	30	26	4
Heifers	46	27	19
Pigs	5	5	—
Total ..	228	176	52

CARCASSES OF BEEF CONDEMNED WITHIN THE CITY DURING THE PAST TEN YEARS.

TABLE NO. 4.

Total Condemned.		Number Condemned on account of Tuberculosis.	Percentage. Tuberculous.
Year.	Carcasses.	Carcasses.	Per Cent.
1909	114	104	91.21
1910	116	110	94.82
1911	88	79	89.77
1912	79	73	92.40
1913	92	89	96.73
1914	83	70	84.33
1915	96	88	91.66
1916	109	103	94.49
1917	98	92	93.87
1918	230	182	79.13

NOTE.—The above refers to whole carcasses and quarters but does not indicate the total animals found tuberculous, and therefore does not include those carcasses in which only the organs or parts were found diseased and condemned. See Tables No. 3 and 7

In my annual Report eight years ago (year 1910) the following statement appeared in reference to tuberculosis as affecting cattle : " It is a well-recognised fact that a large number of cows, of various ages and conditions of apparent health, are being regularly slaughtered in the surrounding country districts and smaller towns, and the meat never submitted to any inspection whatever." " It will, therefore, be very easy—without any undue imagination—for one to arrive at a clear conclusion that the unsuspecting public are being regularly subjected to the dangerous process of not only handling but consuming large quantities of extensively diseased meat." " Meat inspection can never approach completeness until the time arrives when it will be possible to examine the live animals just prior to slaughter, and more particularly, to inspect the carcasses and their internal organs immediately afterwards at one central establishment, such as a modern abattoir."

Centralised Slaughtering Affords Better Inspection.

Since the Live Stock (Sales) Order of 1918 came into operation one has had a rather better opportunity of examining the questions referred to as they apply not only to animals slaughtered outside the City but those slaughtered within. In accordance with the above-named Order beasts and sheep may not (except under specially provided circumstances) be slaughtered unless previously sold within a market. Prior to sale within the market the animals are graded according to quality. There are four grades and the prices are fixed for each. The graded animals may be purchased only by a person authorised by the Food Controller and without permission of the latter may not be moved from one area to another. Again, butchers, whether wholesale or retail, require for the purpose of obtaining their supplies (meat or live stock) a buying permit, issued in accordance with the Meat (Dealers' Restriction) Order of 1918, by or by the authority of the Food Controller. In the grading of cattle there are two classes, one being confined to bulls, bullocks and heifers, and the other to cows. All inferior cattle are, according to the Order, intended to be placed in the fourth, or lowest grade. Cattle in the fourth grade, if condemned as unfit for food after slaughter are a loss to the owner. On the other hand, the owners of cattle placed in any of the first, second, or third grades are paid the fixed prices by the Ministry of Food, whether the carcasses are condemned on account of disease or otherwise, providing they are slaughtered within one of the Government-controlled slaughter-houses. It will be obvious, therefore, that cattle sold for slaughter and intended for human consumption, are, under these conditions, being brought in many cases within the range of closer supervision as to their fitness. Although the grading of cattle and the distribution of meat in bulk (alive or dead) has been the means of causing slaughtering to take place in fewer establishments it has not materially altered the position so far as scattered distribution of premises is concerned. Indeed, on account of the absence of suitable premises within the City for slaughtering on a large scale, in those establishments—including the Government-controlled slaughter-house—where the number slaughtered have been greatly increased, overcrowding has been the rule. Notwithstanding these difficulties, the number of carcasses and parts of carcasses condemned on account of tuberculosis alone amounted last year to just about twice as many as the year previous. Of the 223 bovine carcasses found tuberculous it will be observed that, according to table submitted, no fewer than 142 were those of cows. Prior to Government control—a temporary measure it is believed—many of these animals found their way to other districts and were no more heard of. If out of 223 bovine carcasses found tuberculous 142 were those of cows, of which 115 were so diseased (as actually occurred) as to necessitate the destruction of the entire carcass, we have at once some indication of the menace to the Public Health, not only through meat but also through the milk supply.

Foreign Meat Arriving by Vessel and Landed at Newcastle-upon-Tyne Quayside

Table No. 5.

Sides of Bacon.	Beef.	Opened and Inspected.	Origin of Vessel.
	Casks.	Packages.	Denmark.
22,448	300	79	16

The Waste of Foodstuffs Order, 1918.

The above-named Order, made by the Food Controller under the Defence of the Realm Regulations, came into operation on the 25th February, 1918, making it an offence for any person to waste, cause or permit to be wasted any foodstuffs.

For the purpose of the Order, foodstuff is wasted :—

(*a*) Whenever the foodstuff, being fit for use as human food, is wilfully or negligently damaged, or is thrown away ; or

(*b*) Whenever any person having the control or custody of the foodstuff omits to take any precaution which ought reasonably to be taken for its preservation ; or

(*c*) Whenever a person procures for any purpose a greater quantity of foodstuff than is reasonably required for such purpose, and any part of such foodstuff becomes unfit for human food ; or

(*d*) Whenever any person having the disposal of the foodstuff unreasonably retains the same undisposed of until the same becomes unfit for food.

During the year under report great difficulty has been experienced in preventing the waste of meat distributed from the City on account of issues arising as between wholesale firms allocating on behalf of the Ministry of Food and the Butchers' Associations acting on behalf of individual retailers, causing unnecessary delay of the distribution of consignments within the districts of destination. Such cases may be classed amongst those considered preventable. Again, considerable quantities of meat have been lost to the nation on account of circumstances over which complete control apparently did not obtain. For example, the difficulty of handling huge consignments of frozen meat has been somewhat acute, due to the shortage of cold storage accommodation in many large centres, transport difficulties, and the diversion of traffic over the high seas on account of submarine warfare. Further, meat which is moved from cold storage and allowed to soften through exposure and is then restored, becomes deteriorated so far as keeping qualities are concerned. These conditions applied chiefly to large numbers of separate quarters of beef issued from time to time by the Ministry of Food through the wholesale firms to retailers within the City and which were found within a few hours after reaching the shops to be undergoing putrefaction. In some instances the same conditions applied to quarters sent to retailers in districts outside the City. But cases have occurred, however, as already referred to, in each of which, with better organisation, large quantities of meat which became unsound might have been saved, and the following may be given as an example: On Monday, July 22nd, a message was received that there were 40 quarters of beef within a waggon at the Forth Goods Station requiring inspection. The 40 quarters had, on the 17th July, been taken out of cold storage and sent to a Butcher's Association in the County of Durham. The following day the Association refused delivery, and on the next day, the 19th, it was inspected and condemned by the Local Authority of that district as unfit. It was then returned to Newcastle without having been removed from the waggon. When the meat was examined within the waggon on arrival, on the 22nd, within the City, a repulsive odour was emitted from the bulk. By a superficial examination the whole consignment appeared unfit, but on examining individual quarters it was found that there still remained a quantity of sound and wholesome meat. The whole was promptly removed to wholesale premises of Government Agents where each quarter was carefully dissected, the whole operation being completed within the following two days. The whole consignment weighed 5,832 lbs., and from this 926 lbs., or about 15 per cent. of sound boneless meat, worth about £55, was recovered. This case served as an object lesson, and in order that future difficulties might be anticipated the Newcastle-upon-Tyne Meat Distribution Committee made representation to the Local Food Control Committee with a view to obtaining the services of the Veterinary Inspector, in order to have at their disposal expert advice whenever large quantities of frozen meat of sometimes doubtful quality were about to be distributed. The Sanitary Committee received the application and authorised the Veterinary Inspector to give any assistance in his power in the direction indicated. Although it was not until the latter part of the year that the cases were dealt with on a more satisfactory basis the following table will serve to indicate the importance of the subject :—

TABLE NO. 6.

CARCASSES AND PARTS OF CARCASSES EXAMINED AS TO FITNESS AND REQUIRING SPECIAL ATTENTION FOR THE PURPOSES OF THE WASTE OF FOODSTUFFS ORDER OF 1918.

Examined.	Condemned.	Salvaged.
BEEF. 12 tons 19 cwts. 7 st. 13 lbs., or 29,109 lbs., equal to 50 bullocks and heifers weighing about 41 stones each, dead weight.	8 tons 11 cwts. 6 stones 5 lbs., or 19,244 lbs., equal to about 32 carcasses.	4 tons 12 lbs., or 9,868 lbs., equal to about 16 carcasses.
MUTTON. 13 Carcasses + 820 lbs.	4 Carcasses + 333 lbs.	9 Carcasses + 487 lbs.
VEAL. 32 Carcasses, 14 Plucks and 13 Livers.	15 Carcasses 14 Plucks and 13 Livers.	17 Carcasses.

Included in the total quantity of beef given in the above table are 150 separate quarters, besides 7,944 lbs. of boneless beef which had been contained in 87 boxes.

Carcasses, etc., Destroyed as being Unfit for Human Consumption during the year 1918.

Table No. 7.

	Carcasses				Lungs			Hearts	Kidneys	Livers		Heads		Plucks		Tripe	Tongues	Tails	Plucks	Sheep Sweetbread
	Beef	Veal	Mutton	Pork	Sets Ox	Sets Sheep	Sets Pig	Ox	Ox	Ox	Calf	Ox	Sheep	Sheep	Calf	Ox	Ox	Ox	Pig	
Tuberculosis	171 + 45 qrs.	..	..	5	50	..	..	16	2	23	..	13	..	..	..	..	2	1	2	..
Caseous Lymphadenitis	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fatty Degeneration ..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..
Pleurisy	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Peracarditis	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Peritonitis	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Pyæmia	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Abscesses	3 + 4 qrs. + 44 lbs.	..	7 + 1 qr.	..	5	..	..	3	2	14	..	1	..	..	..	..	..	..	..	..
Purulent Mastitis ..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Parasitic	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Congestion	..	..	..	1	4	..	..	..	4	1	..	..	..	3	..	..	..	..	1	..
Emaciation	4	2	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Imperfectly Bled ..	8 qrs.	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Traumatism	1 + 1 qr. 461 lbs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Died in Transit ..	..	2 — 4 qrs.	11	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Decomposition ..	34 + 7 tons, 13 cwts., 1 qr., 11 lbs	40	82 + 345 lbs.	4	9	..	..	7	72	7	13	6	147	140	42	2482 lbs.	1	..	..	32½ lbs

POULTRY, GAME, FISH, PROVISIONS, ETC., DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION DURING THE YEAR 1918.

TABLE No. 8.

Cause of Unfitness.	Poultry and Game.	Fish.		Fruit.		Provisions.	
Unsoundness and Decomposition.	480 Ptarmigan.	Findon Haddock	630 lbs.	Pears	56 lbs.	Bacon	15,691 lbs.
	37 Hens.	Whitings	448 ,,			Ham	1,719 ,,
	1,046 Rabbits.	Black Jack	28 ,,			Corned Beef	4,542 ,,
	71 Chickens.	Herrings	2,977 ,,			Sausage (Beef)	4,643 ,,
	54 Ducks.	Cod	672 ,,			Sausage (Pork)	410 ,,
	66 Turkeys.	Skate	730 ,,			Veal Loaf	6 ,,
	1 Goose.					Raisins	560 ,,
		SHELL.				Cheese	100 ,,
		Mussels	1,680 ,,			Margarine	10½ ,,
						Rolled Oats	28 ,,
						Flour	14,868 ,,
						Cakes (Sweet)	24 ,,
						Cakes (Fish)	60 ,,
						Pork Pies	74.
						Meat Pies	208.
						Pickled Salmon	35 tons.
						TINNED.	
						Salmon	563½ lbs.
						Tomatoes	532¼ ,,
						Tongue	167½ ,,
						Rabbit	18 ,,
						Sausage	9 lbs.
						Pineapple	13 ,,
						Strawberry	1 ,,
						Con. Milk	2,269 tins.

Salvaging Boneless Beef.

The boneless beef on being removed from the individual boxes appears as hard blocks. When the meat is packed before exportation it is put into the boxes in a soft condition and pressed to fill the box, then frozen, hence the shape. The contents of the boxes included in the above table were found to be mouldy and undergoing putrefaction. On being thawed out the condition was found to exist only to a depth of from ¼ to 1 inch from the external surface. Each block of frozen meat was dealt with by being placed upon a bench fitted with a circular saw, by means of which a slice sufficiently thick to include all the unsound parts was removed from each of the four sides and two ends. This method, tried as an experiment, proved quite a success, particularly on account of quickness, cleanliness, absence of complete thawing and the minimum of waste.

The carcasses of mutton included in the table were, in the majority of cases, inspected on cold storage premises. In some cases the carcasses were in a condition indicating that they had on some previous occasion been partly thawed out and re-frozen whilst in an imperfect condition.

The Damaged Foodstuffs Order, 1918.

The above Order came into operation towards the close of the year, *i.e.*, 1st December. The object of the Order is to secure that the best use be made of condemned and damaged foodstuffs, which, although unfit for human food, can be utilised for the production of tallow, fertilizers, or feeding stuffs for cattle, pigs and poultry, as the case may be.

During the year the following foodstuffs, which were condemned as being unfit for human consumption, were permitted to be sold under declaration and supervision for the purpose of animal food :—

57 cwts. of potatoes.
4 cwts. of flour.
125 cases (6,000 tins) condensed milk.
35 rice cakes.
20 ginger cakes.

There can be little doubt that at the present time the fullest use is not being made of the large number of carcasses of meat and other foodstuffs condemned and destroyed, and eventually manufactured into manure. Condemned diseased and unsound foodstuffs could be made to feed not only the land but also live stock. Indeed, the majority of diseased and unsound meat and other foodstuffs could be sterilised, and with certain products of slaughtering could be manufactured into poultry, pig and dog foods, which would no doubt find a ready market.

The following were destroyed by order of a Magistrate, after being seized and condemned, as distinguished from other articles destroyed with owners consent after being condemned :—

4 carcasses of beef (sent in from the country).
3 carcasses of veal.
71 tierces (35 tons) of American salmon (valued between £6,000 and £7,000).
Horse flesh (4 lbs. meat, 1 liver, 1 heart, 1 kidney, 1 spleen and 1 set of lungs).

SLAUGHTER HOUSES.

During the year under report there were 106 separate premises licensed for slaughtering purposes within the City. These included one knacker's yard, besides two establishments in which horses intended for human consumption only, are slaughtered. The premises in which cattle and sheep are dealt with are (with the exception of a number found chiefly behind private dwellings) made up of groups situate : Cattle Market, Benwell, Stepney, Byker Hill and Dispensary Lane. The latter group consists of two blocks, made up of 40 separate private slaughter-houses. These have for a number of years been licensed for periods of 6 months only. Within the past two years slaughtering premises within each Local Authority's district have been licensed by the Ministry of Food, and in each certain premises have been specially used by the Ministry as a Government Slaughter-house. Owing to the absence of adequate provision for centralised slaughtering within the City the Ministry have, for the time being, made use of a private establishment adjoining the Cattle Market. The use of these premises, although a war expediency, were preferable to the Public Slaughtering Hall, Cattle Market, which is a mere mockery of the name. As was to be expected, owing to the number of animals slaughtered by the Ministry, overcrowding was the rule, and at times the conditions under which the slaughtermen worked were really deplorable. During pressure of work, when large numbers of cattle are being slaughtered within premises inadequate, so far as floor space is concerned, not only is inspection rendered a most difficult task but there exists the great difficulty of preventing the mixing of carcasses, and more particularly the internal organs affected with dangerous diseases with those in a healthy condition.

PROSECUTIONS.

1. *Horse Slaughterer.*—Fined £15 for failing to notify suspected parasitic mange; fined £5 for causing to be moved on highway animal suspected to be suffering from parasitic mange.

2. *Cab Proprietor.*—Fined £2 for failing to notify suspected parasitic mange; fined £1 for having horse on highway whilst affected.

3. *Builder.*—Fined £2 for failing to notify suspected parasitic mange.

4. *Carting Contractor.*—Fined £5 for failing to notify suspected parasitic mange and for having horse on highway whilst affected.

5. *Farmer and Dairyman.*—Former fined £10 for sending diseased meat into the City for the purpose of sale. The latter fined £10 for aiding and abetting the sender.

6. *Slaughterman and Jewish Butcher.*—Former fined £5 for slaughtering calf in contravention of the Live Stock (Restriction of Slaughter) Order of 1917. The latter fined £5 for depositing on premises for the purpose of sale unsound meat (calf).

7. *Belgian Butcher.*—Fined £5 for having deposited on his premises (cellar) for purpose of preparation for sale, unsound horse meat.

8. *Farmer.*—Summoned for sending diseased meat into the City. Case dismissed.

9. *Hawker.*—Fined £2 for failing to notify suspected parasitic mange; fined £2 for keeping diseased animal in an insufficiently fenced field.

10. *Horse Slaughterer.*—Fined £1 for failing to notify suspected parasitic mange; fined £1 for keeping diseased animal in an insufficiently fenced field; fined £5 for allowing the animal to stray.

I have the honour to be, Sir,
Your obedient servant,
THOMAS PARKER,
F.R.C.V.S.

Town Hall,
Newcastle-upon-Tyne.

FOOD AND DRUGS ADULTERATION, Etc..

Total Samples.—The number of **samples** (of all kinds) obtained by the **Inspector of Nuisances** for analysis during the year was 1,161, against 1,251 in 1917. The decrease being due to the scarcity of commodities, and to the Officer set apart for this duty being partially engaged in Food Control work. For details see table on page 143A.

Of this total only 640 were submitted for analysis to the Public Analyst, the remainder being milk samples which, on being tested in the offices of the Health Department, appeared to be genuine.

Informal Samples.—209 samples (included in the foregoing total) were collected " informally," chiefly through the agency of hired persons.

Milk Samples.—The number of milk samples taken was 970 ; 83 of these were certified to be below the minimal limits fixed by the " Sale of Milk Regulations, 1901," whilst one contained annatto, used as a colouring matter.

Samples not Genuine, etc.—The percentage of samples not genuine to the total number taken is 7.84 (compared with 8.6 for the previous year), and the percentage of non-genuine milk samples to the total number of milk samples obtained is 8.66 (as against 11.0 in 1917).

The total number of samples taken is at the rate of 4.1 per 1,000 of the population (estimated) of the City for the year 1918.

Milk Adulteration.—Of the 84 milk samples not genuine, 36 were deficient in non-fatty solids, 33 in milk-fat, and 14 in both (the remaining sample containing annatto, as above).

The percentage of deficiency in fat varied from 1.6 to 31.6 (the average being 12.5), and in solids not fat from 1.0 to 40.7 (average 11.3).

Margarine Act, 1887.—1 sample of margarine (included in the foregoing total of 1,161) has been purchased and analysed. This was found to be genuine, except that it contained boric acid (as below).

Samples taken for Analysis during the Year 1918.

ARTICLE.	No. of Samples obtained.			Result of Analysis		Action Taken			REMARKS.
	Formal	Informal	Total	Genuine	Not Genuine	Prosecutions	Convictions	Cases Dismissed	
New Milk	950	20	970	886	84	35	22	13	In 27 cases the vendors were cautioned (by order of the Sanitary Committee) and in the remaining 22 (of the 84 not genuine) no further action was taken, some of these being informal samples in others deficiency slight, "appeal to cow" samples, etc.
Condensed Milk	..	1	1	1	..	..	..	..	
Margarine	..	1	1	1	..	..	..	..	The sample contained boric acid, under 0.5%.
Coffee	..	1	1	1	..	..	..	..	
Cocoa	..	1	1	1	..	..	..	..	
Tea	..	1	1	1	..	..	..	..	
Sugar	..	1	1	1	..	..	..	..	
Sugar Substitute	..	1	1	1	..	..	..	..	
Flour	..	1	1	1	..	..	..	..	
Self-raising Flour	..	3	3	3	..	..	..	..	1 of these samples, although genuine in materials, was deficient in carbonic acid.
Bun Flour	..	3	3	3	..	..	..	..	
Egg Powder and Egg Substitute	..	6	6	6	..	..	..	..	
Baking Powder	..	23	23	23	..	..	..	..	
Ground Ginger	..	3	3	3	..	..	..	..	
Pepper	..	16	16	16	..	..	..	..	
Mustard	..	10	10	10	..	..	..	..	
Vinegar	1	3	4	2	2	1	..	1	The two samples not genuine (from one vendor) were not vinegar, containing no acetic, but tartaric acid. The first was taken informally, and in respect of the subsequent formal sample a summons was issued, the case being dismissed on payment of costs.
Golden Syrup	..	1	1	1	..	..	..	..	
Custard Powder	..	7	7	7	..	..	..	..	
Corned Beef	..	1	1	1	..	..	..	..	
Cornflour	..	6	6	6	..	..	..	..	
Semolina	1	8	9	5	4	..	..	..	Of the four samples not genuine (all obtained informally) 3 consisted entirely of maize and 1 of ground rice. Efforts to obtain subsequent formal samples were unsuccessful, the Inspector's agent being informed by the shop keeper that they had no semolina on the premises.
Tapioca	..	1	1	1	..	..	..	..	
Rice	..	1	1	1	..	..	..	..	
Ground Rice	..	19	19	19	..	..	..	..	
Jams and Jellies	..	4	4	4	..	..	..	..	
Honey	..	1	1	1	..	..	..	..	
Yorkshire Pudding Powder	..	1	1	1	..	..	..	..	
Cream of Tartar	..	11	11	10	1	..	..	..	The sample not genuine (obtained informally) contained arsenic, 7 parts per million. Local inquiries were made and particulars reported to the Local Government Board.
Tartaric Acid	..	9	9	9	..	..	..	..	
Gregory's Powder	..	5	5	5	..	..	..	..	
Sweet Spirits of Nitre	..	6	6	6	..	..	..	..	
Tincture of Rhubarb	..	5	5	5	..	..	..	..	
Syrup of Rhubarb	..	5	5	5	..	..	..	..	
Camphorated Oil	..	6	6	6	..	..	..	..	
Paregoric	..	6	6	6	..	..	..	..	
White Precipitate Ointment	..	7	7	7	..	..	..	..	
Olive Oil	..	4	4	4	..	..	..	..	
TOTALS	952	209	1,161	1,070	91	36	22	14	Total amount of penalties obtained—£65 10s.*

* Including those in respect of "Offences other than adulteration."—See separate table.

Included in the above are:—

17 "appeal to cow" samples (taken at farm or byre, after witnessing the milking operations). 15 of these proved to be genuine, and two deficient.

65 samples were taken "in course of delivery" (mostly at railway stations).

1 sample submitted by a private purchaser.

Margarine Warehouses.—86 visits have been made to the margarine warehouses. No contravention of the law as to the marking of packages was found.

Preservatives in Food.—Of the total number of samples taken for analysis (1,161), only 1 was certified to contain preservative. This was an informal sample of margarine, the preservative present being boric acid, in quantity below the maximal limit of 0.5 per cent.

Action taken with respect to Offences other than Adulteration.

Offence.	No. of Cases.	Proceedings taken, etc.
Sale of Food and Drugs Act, 1899, *Sec.* 9:— Selling milk from cans upon which the name and address of the vendors were not inscribed.	3	Offenders summoned, and fined respectively £1, 10/-, and 5/-.
Sale of Food and Drugs Act, 1875, *Sec.* 17:— Refusing to sell a sample of milk to the Inspector.	3	Offenders summoned and fined respectively £5, £1, and £1.
Sale of Food and Drugs Act, 1899, *Sec.* 16:— Obstructing the Inspector in the course of his duty.	1	Offender summoned, and fined £2 in respect of the "obstruction," and 5/- for assault; a second dealer (presumed to be the former's employer) also fined 10/- for assault.
Total	7	Amount of Penalties, £11 10s

The Public Health (Milk and Cream) Regulations, 1912.

LOCAL GOVERNMENT BOARD TABLE.

1.—Milk and Cream not sold as Preserved Cream.

	(a) Number of Samples examined for the presence of a preservative.	(b) Number in which a preservative was reported to be present.
Milk ..	450	None.
Cream ..	—	—

2.—Cream sold as Preserved Cream. No samples taken owing to restrictions on supply.

BACTERIAL IMPURITY OF MILK AND WATER.

Milk.—103 samples were obtained and examined by the Bacteriologist for presence of tubercle bacilli, which were found in 3, or 2.9 per cent.

Action taken is described on page 143A.

196 samples were obtained and submitted for examination for presence of evidence of excremental pollution, which was found to an undesirable degree in 131, or 66.8 per cent. The vendors and producers were communicated with and warned, further samples being taken in each case.

Water.—153 samples were collected from all parts of the City, and examined for the presence of *bacillus coli.*

The results are described fully on page 125.

CONDITION OF PREMISES ON WHICH FOOD IS PREPARED.

Bakehouses.—The number of Bakehouses in the City is 253, comprising 23 factories, 113 workshops, and 117 domestic bakehouses.

Factory bakehouses are under the jurisdiction of His Majesty's Inspector of Factories.

The workshop bakehouses have been systematically inspected by the officers of the Health Department, and attention given to matters of cleanliness (including the periodical limewashing required by law) and general sanitary condition.

Whilst the " domestic " bakehouses are not in all cases entirely suitable for the purpose, on the whole they are found to be maintained in a fairly satisfactory state.

A local Act prohibits the storage or preparation for sale of articles of food in any room used as a sleeping apartment, and particular attention is paid to this in the inspection of this class of bakehouse.

Restaurant Kitchens.—The number of kitchens of restaurants, cafes, and dining rooms in the City is 86. These are inspected to ensure freedom from nuisance and the observance of the necessary ventilation, cleansing, limewashing, etc.

Fried Fish Shops.—The number of these shops on the register at the end of 1918 was 113, as compared with 114 in the previous year.

The better control over the conduct of this business since its declaration as an " offensive trade " continues to be of decided advantage in dealing with the sanitary condition of the premises. Little or no fault has had to be found regarding these shops, which, considering the nature of the business, are usually kept in good sanitary order.

Ice Creameries (including Retail Shops).—The number of these places shows a decrease of 12 during the year, viz., from 107 to 95. They have again been regularly inspected, and special attention has been given to cases where the manufacture is carried on in private dwelling-houses, this being discouraged as far as possible. Compared with what formerly obtained, there is now a very marked improvement in the conditions under which this commodity is manufactured for sale.

General Shops from which Milk is Sold.—The number of such shops on the register at the end of the year was 480 (a decrease of 188 on the previous year). This is due to several causes, chiefly difficulties of supply, whilst, in a number of instances, the sale of milk has been discontinued on representation being made to the proprietors as to the unsuitability of the premises for such purpose. Some of these previously dealt only in small quantities and readily gave up on being appealed to.

As stated in previous Reports, it is considered highly objectionable that milk should be sold from many of the small "general" shops where the cramped and crowded conditions, together with the nature of other articles sold, etc., render impossible the adoption of any safeguard against the contamination or pollution of the milk. Steps are being taken (under powers conferred by the Milk (Registration of Dealers) Amendment Order, 1918), with a view to the sale of milk being prohibited in those shops of this class which are considered to be absolutely unsuitable for the purpose.

In dealing with this question due regard is had to the requirements of the district, so as not to stop altogether facilities for obtaining this necessary article of food for infants and others.

DEFENCE OF THE REALM.

Food Control Orders.

Attention has again been given to the enforcement of these Orders, two Assistant Inspectors having been engaged (together with their ordinary duties) in making visits and inquiries and in the collection of samples.

The following is a summary of the work done under this heading during the year under report :—

Number of			Action Taken.		Result.		
Visits Made.	Samples Taken.	Offences Disclosed.	Cautions.	Prosecution.	Convictions.	Cases Dismissed.	Total Amount of Penalties.
5,554	357	200	121	79	61	18	£143 11s.

(Signed) Wm. Hudspeth,

Inspector under the Food and Drugs Act

REPORT OF THE
INSPECTOR OF NUISANCES.

V.—THE HOME AND THE WORKSHOP.

NUISANCES, HOUSING, FACTORIES AND
WORKSHOPS, &c.

NUISANCES, HOUSING, FACTORIES AND WORKSHOPS, Etc.

The following is the Report of the Inspector of Nuisances.

To the Medical Officer of Health.

Sir,

I beg to present to you my eleventh report upon the work done in my section of the Health Department, viz., that for the year ended 31st December, 1918, which, together with the section on Food and Drugs Adulteration, etc., is as follows :—

NUISANCE ABATEMENT.

The War, unfortunately, continued during the greater part of the year under report, but happily terminated in the cessation of hostilities and the signing of the Armistice on November 11th.

With the prolongation of the War the difficulties alluded to in previous reports in the way of getting sanitary improvements of a constructional nature carried out were greatly intensified during the year, owing to increased shortage of labour, scarcity, and high cost of building materials, etc. It was found impossible in many instances to get even small repairs executed without a certain amount of delay, involving repeated visits to premises in order to ascertain whether works ordered were being carried out. In the abnormal circumstances the systematic inspection under the Housing, Town Planning, etc., Act, had again to remain in abeyance.

Of the six members of the inspecting staff serving with H.M. Forces, and one employed on Government work, only the latter had been released at the end of the year. Four of those on active service have however since been demobilised, and have resumed their duties at the Health Department. Of other members of the staff who were engaged in war work in addition to their ordinary duties one on voluntary ambulance work had the misfortune (whilst proceeding with a detachment of men to assist in the conveyance of wounded from the railway station to the Northumberland War Hospital) to be knocked down, in the darkness, by a motor ambulance, and seriously injured, necessitating his absence from the Health Department for several months. It is pleasing to be able to state that he is back to duty, but even yet he is feeling the effects of his injuries.

The following are the number of notices and letters issued during the year :—

Total number of notices served—	Informal	7,577	
	Statutory ..	113	7,690
Number of letters sent out..	.. .. ..		1,854
	Total		9,544

Magisterial Proceedings.—In one instance, the owners elected to close the property in question rather than carry out necessary repairs and alterations, and a Closing Order was accordingly made, summonses having to be issued against the three tenants to get them to quit. These were adjourned from time to time, and eventually withdrawn on the premises being vacated. In no other case was it found necessary to resort to legal proceedings in order to obtain the abatement of nuisances, etc.

Military.—The officers of the Health Department have again been acting in close and cordial co-operation with the military authorities in the inspection of billets, horse lines, etc. The officer specially detailed for this particular duty (in addition to his ordinary work) continued to devote to it a considerable portion of his time, his inspections being supplemented by periodical visits on the part of the District Sanitary Inspectors.

2,347 inspections (both routine and detailed) of the billeting stations were made during the year. They were generally found to be well looked after, and any representation as to sanitary improvement invariably received the courteous attention of the military authorities. Careful supervision has also been given to premises on which foodstuffs were prepared for the troops.

THE PUBLIC HEALTH (INFLUENZA) REGULATIONS, 1918.

In connection with the epidemic of influenza, and in pursuance of the above order, the places of entertainment were inspected, special attention being given to the matters of cleanliness, ventilation, sanitary accommodation, and general sanitary condition. The proprietors were communicated with where necessary, considerable improvement being effected and the premises brought into conformity with the requirements of the Order.

SUMMARY OF INSPECTIONS OF BILLETS, YEAR 1918.

Special Inspector's Visits	1,919
District Inspector's Visits	428
Billets measured for Overcrowding	71
Hall and Rooms contained in above	966
Billets found Overcrowded	3
Rooms found Overcrowded	34
Rooms Condemned	1
Neglect of, and defective means of ventilation	21
Inadequate means of ablution	6
Insufficient W.C. accommodation	67
Obstructed and Defective W.C. Drains and Cesspools	100
Accumulation of Refuse	124
Other defects	8
Munition Workers' Hutments Inspected	31
Premises of Firms supplying Army Canteens or supplementary rations for troops	244

USE OF PUBLIC SANITARY CONVENIENCES BY SOLDIERS.

The arrangements made in January, 1915, for troops who were fed in the various restaurants round the centre of the City to have free use of the public sanitary conveniences, still continues.

REMOVAL OF ASHPITS.

In continuance of the practice of supplying the first dustbins free of charge as an inducement towards the abolition of ashpits, 16 such dustbins have been given during the year, in place of 14 dry ashpits removed.

The following table, prepared by the *Medical Officer of Health*, shows the incidence of Enteric Fever to relation to the proportion of dry and water closets in the City, over a number of years :—

ENTERIC FEVER IN RELATION TO THE ELIMINATION OF THE CONSERVANCY SYSTEM OF DISPOSAL OF EXCRETA DURING THE LAST 28 YEARS.

YEAR.	CITY ENGINEER'S CENSUS OF		ENTERIC FEVER.	
	Number of Dry Closets in the City.	Number of Water Closets in the City.	No. of Cases.	Attack Rate per 1000 population.
1891	8,244	21,966	134	0.72
1892	8,640	24,749	97	0.51
1893	8,566	25,822	141	0.73
1894	8,515	26,997	164	0.84
1895	8,661	27,848	213	1.07
1896	8,867	28,977	176	0.87
1897	8,982	29,931	138	0.68
1898	9,317	31,158	307	1.48
1899	7,689	33,030	133	0.63
1900	7,966	33,708	79	0.37
1901	7,956	34,408	76	0.35
1902	7,863	35,323	57	0.26
1903	7,613	36,661	75	0.35
1904	7,313	37,985	30	0.14
1905	9,741†	42,175	50	0.20
1906	9,501	43,348	70	0.27
1907	9,237	43,460	66	0.25
1908	9,109	44,803	111	0.42
1909	8,781	45,468	74	0.28
1910	8,428	46,458	63	0.24
1911	7,959	47,681	87	0.33
1912	7,166	48,788	91	0.34
1913	6,332	49,397	124	0.46
1914	5,999	49,957	102	0.38
1915	5,528	51,466	100	0.36
1916	5,343	51,651	76	0.27
1917	5,337	51,657	25	0.09
1918	5,337	51,659	29	0.10

† The large increase in the number of dry closets in 1905 is due to the incorporation of Walker and Benwell in November, 1904, these districts having a privy-box system.

The proportion of Dry Closets to Water Closets has thus fallen from 1 to 2.66 in 1891 to 1 to 10.3 in 1918.

ATMOSPHERIC POLLUTION.

Smoke Inspections.—The following are particulars as to smoke observations made :—

No. of chimneys watched.	No. of observations made.	No. of chimneys from which black smoke issued in such quantity as to be a nuisance for periods of over 5 minutes in the aggregate during one hour.	No. of times when smoke issued so as to be a nuisance.	No. of notices served for the abatement of smoke nuisances.		No. of Prosecutions.
				Informal.	Statutory.	
22	124	7	7	7	....	....

Atmospheric Pollution Records.—An observation station, under the immediate control of the City Analyst, is placed on an open site between City Road and Wall Knoll, in connection with similar stations in other towns, the monthly results from all of which are compared and published by the (National) Committee for the Investigation of Atmospheric Pollution.

The monthly readings from the Newcastle station are appended :

ATMOSPHERIC POLLUTION.—NEWCASTLE RECORDS, 1918.

MONTH.	RAINFALL Millimeters.	METRIC TONS OF DEPOSIT PER SQUARE KILOMETER PER MONTH.								
		Insoluble Matter.			Soluble Matter.		TOTAL SOLIDS.	Included In Soluble Matter.		
		Tar.	Other Carbonaceous	Ash.	Loss on Ignition.	Ash.		Sulphate as SO_3	Chlorine Cl.	Ammonia NH_3
January ..	58	0·39	3·26	4·56	2·69	3·62	14·5	1·78	0·83	0·08
February ..	28	0·03	2·80	4·25	1·45	2·67	11·2	1·07	0·63	0·12
March	26	0·31	3·70	7·43	1·77	2·91	16·1	1·46	0·50	0·10
April	31	0·18	4·23	7·71	1·50	2·87	16·5	1·42	0·44	0·15
May	35	0·28	3·19	8·83	1·89	2·31	16·5	1·56	0·36	0·13
June	13	0·11	1·12	2·43	0·97	1·92	6·5	0·94	0·26	0·02
July	93	0·16	5·24	7·35	3·63	11·21	27·6	4·16	0·92	0·14
August ..	31	0·16	3·16	7·80	1·43	3·24	15·8	1·50	0·30	0·07
September ..	112	0·10	2·86	4·33	2·23	4·46	14·0	2·45	0·91	0·28
October ..	54	0·12	4·36	5·91	1·85	2·94	15·2	1·61	0·39	0·18
November ..	30	0·10	3·16	9·05	1·79	4·42	18·5	2·05	0·42	0·09
December ..	71	0·14	3·16	6·23	2·57	2·57	14·7	1·71	0·48	0·24
TOTAL, 12 months	582	2·08	40·24	75·88	23·77	45·14	187·1	21·71	6·44	1·60
Average per month ...	48	0·17	3·35	6·32	1·98	3·76	15·6	1·81	0·54	0·13

An average of 15.6 metric tons of total solids per square kilometer per month is equivalent to 15 *cwts. per acre per annum, or* 480 *tons per square mile.*

OFFENSIVE TRADES.

The following are the numbers and classes of offensive trades carried on within the City :—

Specified in Section 112, Public Health Act, 1875.

Blood Boiler (0), Bone Boiler (4), Fellmonger (0), Soap Boilers (2), Tallow Melter (0), Tripe Boilers (8).

Declared by Local Authority, confirmed by Local Government Board, in accordance with Section 51, Public Health Acts Amendment Act, 1907.

Rag and Bone Dealers (26), Dealers in Hides and Skins (4), Dealer in blood or other putrescible animal products (1), Blood Dryer (0), Fat Melter or Fat Extractor (3), Glue and Size Makers (3), Gut Scrapers (3), Fish Friers (113).

As compared with the previous year, this is a decrease of 1 rag and bone dealer and 1 fish frier.

Close attention has again been given to the premises concerned, which, on the whole, have been found to be maintained in good sanitary order and free from nuisance.

SUMMARY OF NUISANCES, ETC., FOR THE ABATEMENT OF WHICH NOTICES WERE SERVED DURING 1918.

Defective privy and ashpit (to repair)	1
Defective "cell" privy (to repair)	1
Foul or defective ashpits not connected with privies (to remove and provide dust bins)	8
Insufficient water-closet of privy accommodation (additional water-closets ordered)	14
Defective or insufficient dust bins (to provide new or additional)	1,332
Defective water-closets (to repair)	1,121
Water-closets without water supply (to provide water)	367
Choked water-closets (to cleanse—mostly served on tenants)	289
Dirty water-closets (to cleanse—all served on tenants)	184
Defective pail closets (to repair, provide new pails, etc.)	287
Dirty privies (to cleanse—all served on tenants)	19
Defective drains (to repair, or construct new drains)	124
Choked drains, etc. (to cleanse)	1,170
Defective or choked sinks, waste pipes, etc. (to repair or cleanse)	300
Defective or choked soil-pipes, vent shafts, etc (to repair or cleanse)	19
Sink waste-pipes not trapped	3
Want of or defective pavement in yards and passages (to provide or repair)	77
Dirty rooms (to be cleansed)	29
Damp rooms	26
Overcrowding (to abate)	48
Dirty yards, passages, stairs, etc. (to cleanse)	495
Animals, pigeons, and fowls improperly kept	24
Offensive accumulations (to remove)	119
Accumulatious of manure (to periodically remove)	39
Want of or defective manure pits (to provide or repair)	1
Broken roofs and want of or defective or choked spouting (to repair, provide, or cleanse)	564
Want of water (to provide supply)	1,083
Smoke nuisances (to abate)	7
Want of proper ventilation to rooms (including broken window cords in tenements)	70
Defects in Council Schools	
Defective w.c.'s	3
Choked w.c.'s	3
Conveniences dirty	3
Yard pavement defective	1
Structural defects in houses (broken plaster, floors, stairs, etc.)	205
Dirty cisterns supplying water to sinks, etc.	3
Slop water or excreta thrown into privy pails, ash-tubs or dustbins	14
Filth thrown on yards, streets, etc.	6
Piggeries, unsuitable or defective	2
Stables, unsuitable or defective	3
Food manufactured or stored for sale under improper conditions	1
Bakehouses—Dirty condition of	8
Bedding in dirty condition (to cleanse)	1
Unsuitable premises occupied as dwellings	8
Insufficient means of drainage	1
Public-house urinals (foul, without water, etc.)	3
Cinemas (want of cleanliness, inadequate ventilation and sanitary conveniences out of order, communicating with Hall, etc.)	27
Unclassified minor nuisances (to abate)	30
Total	8,145

Details Relating to Certain Works Carried Out in the Abatement of Nuisances and to Inspections Made During 1918.

Length (in yards) of old drains removed	363
Length (in yards) of new drains constructed	380
New trapped gullies provided to drains	80
Defective water-closets removed	20
Water-closets provided (in place of the foregoing defective water-closets removed, also in one case where the accommodation was previously insufficient)	21
Dry ashpits removed and replaced by galvanized iron dustbins	14
Dustbins substituted for dry ashpits where water-closets existed	‡16
No. of drains tested	278
No. of tests of above drains made by smoke and water	303
No. of inspections from complaints made at office (verbally or by letter)	2,163
No. of tenement inspections made	16,569
No. of contraventions of Tenement Bye-laws for which notices have been served to obtain remedy	§1,632
Inspections of houses made from complaints received outdoors or nuisances discovered in the districts, including a large number of minor nuisances, such as choked drains and dirty yards, the abatement of which was accomplished at the time of visit, and without legal notice	6,182
Inspections to learn if works ordered were in progress	14,838
Supervisions of work in progress	985
Common yards and courts in the worst localities specially visited on Friday afternoons and Saturday mornings to obtain weekly cleansing of same	33,826
Inspections after infectious disease	713
Inspections of milk shops and ice creameries (including retail shops)	3,286
,, bakehouses	†589
,, offensive trades	1104
,, wholesale margarine warehouses	86
,, as to limewashing of tenements	504
,, schools	219
,, Military Billeting Stations	2,347
Miscellaneous visits	1,221

‡ Free dust bins given by Corporation in each case.

§ In addition to this number, the District Inspectors have daily had premises cleansed on verbal order.

† Including 119 inspections made under the Factory and Workshops Acts by the Assistant Inspectors of Workshops.

Summary of Legal Proceedings Ordered to be Taken Before the Magistrates for the Abatement of Nuisances, Etc., During the Year 1918.

Nature of Complaint.	No. of Cases	How disposed of.
Public Health Acts :—		
Choked drains.	3	Drains cleared without the summonses being applied for.
Defective drains.	1	Drain repaired without the summons being applied for.
Offensive accumulations.	1	Refuse removed without the summons being applied for.
Defective roofs or spouting	4	Roofs or spouting repaired without the summonses being applied for.

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC., DURING THE YEAR 1918.—*Continued.*

Nature of Complaint.	No. of Cases.	How disposed of.
Want of efficient ventilation to rooms (owing to broken sash-cords).	1	Sash-cords renewed without the summons being applied for.
Defective sink wastepipe.	1	Wastepipe repaired without the summons being applied for.
Workshop stairs, landings, and conveniences dirty (one of the latter being also choked.)	1	Requisite cleansing carried out without the summons being applied for.
Cellar unpaved and gully improperly fixed, allowing water to stand.	1	Premises eventually dealt with as unfit for habitation and closed as dwellings by an Order of the Corporation.
Public Health Act, 1875 *: Sec.* 36, *and Newcastle-upon-Tyne Improvement Act,* 1892 *: Section* 53 *:—*		
Houses without sufficient water-closets (defective w.c.'s to be repaired, furnished with adequate water supply, etc.).	6	In 1 instance the premises (also referred to in foregoing par.) were eventually dealt with as unfit for habitation and closed by an Order of the Corporation ; in 1 case the convenience dealt with was for the use of females engaged in a workshop, and these ceasing to be employed, the use of the closet was discontinued (other accommodation on the premises being adequate). In the remaining 4 instances the conveniences were put in order without the summonses being applied for.
Newcastle-upon-Tyne Improvement Act, 1882 ; *Sec.* 32 *:—*		
Occupying rooms in contravention of a Closing Order.	1	Summonses issued against the tenants (3) and eventually withdrawn on the premises being vacated.
Newcastle-upon-Tyne Corporation Act, 1911 *:* Sec. 55 :—		
Want of proper dustbins for storage of house refuse	7	Dustbins provided without the summonses being applied for.
Tenement Bye-laws :—		
Contravention of Bye-law No. 16 (w.c. structure and apparatus).	1	W.C. repaired without the summons being applied for.
Total ..	28	

HOUSING.

That the problem of finding houses is by no means less acute than in previous years is shown by the following return :—

CITY ENGINEER'S CENSUS OF UNOCCUPIED HOUSES.

Class of House	Nov. 1912.	Aug. 1914.	Nov. 1917.	Nov. 1918.
Self-contained	306	137	40	29
Flats .. .. Each Flat counted as a separate dwelling.	903	75	None.	None.
House and Shop combined ..	68	29	1	2
Tenemented Houses	28	3	None.	None.
Total	1,305	244	41	31

Bonuses for possession are offered in every evening's paper, as much as £25 for a four-roomed flat, while £10 is nowadays a quite common inducement.

Particular attention has again been given to the inspection of dwellings of the poorer class, and the remarks contained in the following extract from the previous Report not only still apply, but may be emphasised, the housing problem having become more acute than ever during the year :—" There has been no diminution in the demand for houses, both of this kind and of the better working class description. On the contrary, the continuance of the War has served to accentuate the difficulties referred to last year. In the inspection of tenement dwellings it has been the common experience to find them, where not overcrowded (from a legal standpoint), occupied at any rate to the utmost limit permitted by the bye-laws. Where actual overcrowding is found, the insufficiency of housing accommodation to meet the demands raises considerable difficulties in the way of securing its abatement. In very many instances tenants only too willing to transfer their home, are met with the impossibility of finding a more suitable abode. In other cases, newcomers to the City (mostly on war work) have found it impossible to procure houses, with the result that they have been compelled to take up their residence with relatives or others, whose accommodation, even before, probably barely sufficed to meet their own requirements. The result is a state of congestion which precludes any relaxation of vigilance on the part of the inspecting staff, and the difficulty is not easy of solution under present circumstances."

Effect of Bad Housing.—Reference has already been made to the effect of bad housing and overcrowding upon the public health. It is of interest to summarise some of the points. Speaking generally, the wards with the highest populations per acre have also the highest death rates. The converse does not always hold, as some wards, such as Walker, may have small, densely packed areas scattered about among wide stretches of open space or farm land. The rates in these will be relatively high. But where the dwellings are evenly distributed and in good sanitary condition, and the population on area is low, the death rate is also low.

Thus the highest death rates from all causes are in All Saints' (25.4), and the lowest in Jesmond (10.5), which occupy respectively also the opposite ends of the scale in regard to quality of housing and density of population. (See Table on page 38).

Similarly infantile mortality generally follows the same rule, and the wards with the highest wastage of child life are again the most crowded ones, thus St. John's had an infantile mortality rate of 170 deaths per 1,000 births, as compared with a rate of 38 in Arthur's Hill, and 51 in Jesmond.

Over a period of eleven years the deaths per 1,000 births in one room, two room, and three room houses have been respectively 148, 125, and 109, and last year were 148, 133, and 112.

In the case of tuberculosis one sees again the influence of congestion and bad houses in the fact that the highest mortality for the year was in All Saints' (3.53), while the lowest incidence occurred in Jesmond, 0.52.

Again, 28 per cent. of the population live in one and two room houses, yet over 37 per cent. of the deaths from consumption were among these.

As will be noticed previously (page 151), closet conversion has fallen off almost entirely, as has also, since war broke out, the number of nuisances dealt with by notice and otherwise, due, not to any lessening of the need for this work, but chiefly to lack of labour and to the high price of building materials.

Owing to increased shortage of labour it has again been impossible to get all tenemented property limewashed twice a year. This has been enforced in the most urgent cases, and now that the war is over the matter will be taken up again with a view to the requirements of the Byelaws being complied with in this important respect. 504 visits for this purpose alone were made during the year.

The Housing, Town Planning, etc., Act, 1909.

The house to house inspection which was being carried out under this Act has had to be discontinued entirely owing to the war.

Houses Dealt with Under the Newcastle-upon-Tyne Improvement Act, 1882, Section 32.

None.

Houses Demolished.—15 tenemented houses (comprising 48 holdings), which have been closed since 1910, in connection with Ouseburn Valley Improvements, were demolished during the year.

Houses built during the Year 1918.—The City Engineer reports that there were no houses built during the year under report.

Tenement Bye-laws.—The number of tenemented houses in the City is 3,498, containing 9,931 holdings, as follows :—

1 Room.	2 Rooms.	3 Rooms.	4 Rooms.	5 Rooms.	Total.
3,329	5,419	1,069	111	3	9,931

Customs and Inland Revenue Act, 1890, Sec. 26 (2).—No applications under this Act were received.

New Buildings and Sanitary Alterations.—103 plans were examined by the Medical Officer of Health before their submission to the Town Improvement and Streets Committee and approved or otherwise by the Medical Officer of Health, and forwarded to the City Engineer for his consideration, as compared with 120 during the previous year.

COMMON LODGING HOUSES.

The number of registered common lodging houses in the City at the end of the year was 55, as against 57 in 1917.

In accordance with the requirements of the Newcastle-upon-Tyne Corporation Act, 1911, applications were received at the beginning of 1918, for the re-registration of 57 of these houses, all of which were registered as desired, up to the end of the year, 2 houses being subsequently discontinued as common lodging houses and converted into " furnished rooms."

The satisfactory control of these houses by the keepers has been maintained.

Those in proximity to munition works have again been fully occupied, and in the others there has been an increase in the number of lodgers as compared with the previous year.

Taking the City as a whole, the accommodation afforded by this class of dwelling continues well in excess of the demand.

The following summary shows the accommodation afforded by the common lodging houses in the City :—

Description of Lodgers.	No. of		Accommodation.			
	Houses	Beds.	Married Couples	Single Women	Single Men.	Total.
Married couples and single women ..	2	47	22	36	..	58
Single women and single men	2	92	..	47	45	92
Single men, single women and married couples	3	145	46	50	72	168
Single women only ..	2	36	..	36	..	36
Single men only.. ..	46	1,605	..	..	1,605	1,605
Totals	55	1,925	68	169	1,722	1,959

The total number of lodgers for which the houses were registered was thus 1,959, as against 2,019 at the close of 1917 (a decrease of 60 in the total accommodation). The average number of lodgers per night was 1,588, the highest and lowest numbers on any one night being 1,651 and 1,505 respectively.

Of the above, 18 houses (with accommodation for 643 lodgers and an average per night of 499) are in the region of the Quayside (Lower Pilgrim Street, Close, etc.), and although well kept, all things considered, the premises themselves are not in all respects suitable for the purpose for which they are used. Many of these houses are entered from dark and narrow passageways, some of the rooms being irregular in shape, with low ceilings, deficient in light, staircases narrow and "cranky," etc. Whilst the buildings cannot be said to be in bad structural repair, yet on account of their age they are not well adapted for the purpose of lodging houses, and it is therefore suggested that they should now give way to more up-to-date dwellings, and, in these, due provision should be made for the proper separation of the sexes, which cannot be obtained under existing conditions. In the process of Reconstruction in the near future which is contemplated in the matter of housing for the poorer classes, this part of the general question should not be overlooked. The persons who frequent the lodging houses in the particular area referred to are, for the most part, of the very lowest social grades, such as tramps, hawkers, and general loafers. The number of common lodging houses receiving women (either singly or as "married couples") is 9, and of these all but one (which is set apart for single women only) are in this area.

REGISTERED COMMON LODGING HOUSES.

SUMMARY OF WORK DONE AND VISITS MADE DURING THE YEAR 1918.

Number of Houses on the Register at the end of the year	55
Applications for registration (all granted)	57
Existing houses re-registered (Newcastle Corporation Act, 1911, Sec. 63)	57
Houses Closed (converted to "furnished rooms")	2
Inspections made in the day-time	10,063
Inspections made in the night-time	526
Notices served { *re* washing of bed clothes 224 *re* limewashing of houses, 112 }	336
Contravention of Bye-laws, &c. :--	
Cleaning and ventilation of houses	4
Bed-clothes not properly "aired" during prescribed hours	15
Cleansing of yards, conveniences, etc.	8
No registered "deputy" in charge (keeper non-resident)	2
Beds and bedding dirty or defective, etc.	10
Structural defects in houses	8
Defective water-closets and drains	28
Choked drains, water-closets, &c.	11
W.C.'s without water	8
Defective roofs and choked or defective spouting	10
Fowls kept	1
Want of or defective dustbins	6
Accumulation of refuse	2
Want of water supply	6
Insufficient ventilation to rooms (broken window-cords &c.)	14
Unclassified minor nuisances or defects	7
Number of prosecutions	None
Deaths reported (non-infectious disease)	8
Cases of infectious disease reported (all tuberculosis)	15

FACTORIES AND WORKSHOPS.

Factory and Workshop Acts.—There are on the Register 1,223 workshops, besides a large number of domestic workshops, workplaces, laundries and bakehouses.

Particulars as to the number and nature of the various trades carried on, the number of inspections made, defects found, outworkers, etc., are given in the following tables.

During the year 40 lists of outworkers have been received, 14 employers having sent in lists twice, and 12 employers once.

Included in the lists so received were 16 names and addresses of out-workers employed in districts outside the City. These were duly forwarded to the respective districts, as required by law.

37 notices as to insanitary conditions in factories and workshops have been received from His Majesty's Inspectors of Factories. 24 of these related to factories, and 13 to workshops. The matters referred to were duly investigated and dealt with by service of notice, etc., the results being reported to the Inspectors of Factories as required by the Act.

ADMINISTRATION OF THE FACTORY AND WORKSHOP ACT, 1901, IN CONNECTION WITH FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK, DURING THE YEAR 1918.

Home Office Tables.

1.—INSPECTION.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR INSPECTORS OF NUISANCES.

PREMISES.	NUMBER OF		
(1)	Inspections (2)	Written Notices. (3)	Prosecutions. (4)
Factories .. .. (Including Factory Laundries.)	95		
Workshops.. .. .. (Including Workshop Laundries.)	2 538	234	—
Workplaces .. .. (Other than Outworkers' premises included in Part 3 of this Report.)	196		
Total	2,829	234	—

2.—DEFECTS FOUND.

PARTICULARS. 1.	NUMBER OF DEFECTS Found 2.	Remedied 3.	Referred to H.M. Inspector 4.	No. of Prosecutions 5.
**Nuisances under the Public Health Acts:*				
Want of Cleanliness	77	79	—	—
Want of ventilation	6	6	—	—
Overcrowding	2	2	—	—
Want of drainage of floors	—	—	—	—
Other nuisances	54	55	—	—
†Sanitary accommodation: insufficient	15	16	—	—
†Sanitary accommodation: unsuitable or defective	53	57	1	—
†Sanitary accommodation: not separate for sexes	11	11	2	—
Offences under the Factory and Workshop Act:—				
Illegal occupation of underground bakehouse (s. 101)	—	—	—	—
Breach of special sanitary requirements for bakehouses (ss. 97 to 100	13	13	—	—
Other offences	—	—	—	—
(Excluding offences relating to outwork which are included in Part 3 of this Report.)				
Total	231	239	3‡	—

* Including those specified in sections 2, 3, 7 and 8, of the Factory and Workshop Act as remediable under the Public Health Acts,

† Sec. 22 of the Public Health Acts Amendment Act, 1890, is in force. The standard fixed by the Sanitary Accommodation Order (No. 89) of 4th February, 1903, is followed as a model.

‡ Relating to Factories.

NOTE—When the number of defects "remedied," column 3, exceeds the number of defects "found," column 2, this is accounted for by certain defects included in the previous report having since been remedied.

FACTORY AND WORKSHOP ACTS—*Continued.*

3.—HOME WORK.

Nature of Work.	Outworkers' Lists, Section 107.									Outwork in Unwholesome Premises Section 108.			Outwork in Infecte Premises Sections 109, 110.		
	Lists received from Employers.						Notices served on Occupiers as to keeping or sending Lists.	Prosecution.							
	Twice in the Year.			Once in the Year.				Failing to keep or permit inspection of Lists.	Failing to send Lists.	Instances.	Notices served.	Prosecutions.	Instances.	Orders made (Section 110).	Prosecutions (Sections 109, 110).
	†Lists.	†Outworkers.		Lists.	Outworkers.										
		Contractors	Workmen.		Contractors	Workmen.									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Wearing Apparel, Making, etc.	28	8	73	12	Nil.	49	§ 11	§ Nil.	§ Nil.	3	* 3	Nil.	Nil.	Nil.	Nil.
Total	28	8	73	12	....	49	11	....	....	3	3	....	....	....	..

NOTES.—† The figures in columns (2) (3), and (4) are the *total* number of lists (received from employers who sent them both in February and August as required by the Act) and of the entries of names of outworkers in those lists. They are, therefore, double of the number of such employers and (approximately) double of the number of individual outworkers whose names are given, since in the February and August lists of the same employer the same outworker's name is often repeated.

Columns 3, 4, 6, and 7.—Employers seldom state whether their Outworkers are "Contractors" or "Workmen," hence the numbers given above may not be properly divided.

§ In all of these cases the lists of outworkers were not received in the month of February or August as required by the Act, but in every such case they were subsequently received on the employers being reminded of their default.

* In each case the Notice was served upon the *Outworker*, and was duly complied with.

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year. (1)	Number. (2)
Workshops	1,223
Domestic Workshops	240
Workplaces	247
Laundries	44
Bakehouses	230
Total	1,984

5.—OTHER MATTERS.

CLASS. (1)		Number. (2)
Matters notified to H.M. Inspector of Factories :—		
Failure to affix Abstract of the Factory and Workshop Act (sec. 133)		8
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5),	Notified by H.M. Inspectors ..	37
	Reports (of action taken) sent to H.M. Inspectors	37
Other :—		
Underground Bakehouses (s. 101) :—		
Certificates granted during the year		..
In use at the end of the year		12

6.—TRADES.

Particulars as to the number and nature of the various trades carried on in the workshops of the City.

TRADES	Workshops	Domestic workshops, including domestic bakehouses and laundries	Workplaces
Ærated Water Manufacturers, Beer Bottling, etc.	7	..	9
Artificial Stone, Asphalte, Bitumen Solution, Enamel and Cement making	5	..	..
Athletic Outfitters	3	..	..
Bacon Washing	10	..	4
Bags, Baskets, Trunks, Brushes (making and repairing)	14	1	..
Bakehouses	113	117	..
Bouquets and Wreath making	15	..	..
Bedsteads, Bedding and Mattress making ..	1	1	6
Bicycle making and repairing	28	5	..
Blacksmiths and Locksmiths	44	..	..
Boat Building	3	12	..
Boots, Shoes, Slippers (making and repairing)	149	24	..
Carts, Carriages, Coaches, Barrows (making and repairing)	12	..	6
Carpets, Canvas, Waterproof Cover making	6	..	..
Chemical Works	2	..	..
Confectionery making	9	1	..
Carried forward	421	161	25

6.—TRADES.—*continued.*

TRADES	Workshops	Domestic workshops, including domestic bakehouses and laundries	Workplaces
Brought forward	421	161	25
Coopers..	6	..	..
Cork Cutters	2	..	..
Currants and other Fruit packing & cleaning	4	..	..
Cigarette making & Pipe making & repairing	3	..	..
Dressmaking, Milliners, and Mantle Makers	198	108	..
Drysalters	4	..	..
Engravers	5	..	..
Engineers, Electric Heating and Cooking, etc.	24	..	..
Firewood Cutting and Firelighter Makers ..	4	..	1
Fish Curers	2	..	..
Furniture, Automatic Seats, French Polishing and Upholstery	49	6	..
Grain, Ice, Meat, Onions, Oil, packing and storage	24	..	27
Harness making and repairing	12	..	..
Hide and Skin Dealers	..	..	4
Instruments—Mathematical, Musical, etc. (making and repairing)	6	..	..
Jewellery, Watches, Clocks (making and repairing)	51	..	..
Joiners, Handrailers, Ladder Makers, and Wood Carvers and Turners	63	6	..
Lamp Making and repairing	1	..	..
Laundries	33	11	..
Marble Masons and Monumental Sculptors	9	..	..
Marine Stores	15	..	29
Miscellaneous Warehouses and Workshops, (which include repairing umbrellas and guns, preparing cattle food and medicine, dressing leather, packing eggs, lard rendering and gut scraping) ..	21	1	30
Painters' Workshops, and making and bottling Paint and Varnish	19	..	..
Photographers..	23	3	..
Pickle and Sauce making	6	..	..
Picture Framers and Gilders..	11	..	..
Plasterers, Lath Rendering	3	..	..
Plumbers, Gas Fitters and making and repairing Sanitary Pipes and Fittings ..	66	3	1
Restaurant kitchens	..	..	86
Rubber Stamps and Tyres (making and repairing)	2	..	..
Scales, Weighing Machines and Sewing Machines (making and repairing) ..	8	..	..
Sign Boards, Sun and Venetian Blind (making and repairing)	4	..	..
Stained Glass making..	5	..	..
Stables (Livery, etc.)..	..	..	33
Tailors	197	46	..
Taxidermists, Fur pulling and cleaning ..	6	..	..
Tea Blending and Packing	5	..	..
Ticket Writers..	7	1	..
Timber Yards	..	..	11
Tin, Iron Plate and Wire Workers	14	1	..
Tripe Dressers..	6	..	..
Typewriting Machines (repairing)	4	..	..
Underclothing (making)	26	21	..
Totals	1,369	368	247

COUNCIL SCHOOLS.

Sanitary Inspection of Council Schools.—219 inspections of these schools have been made during the year. At one, insanitary conditions were found in connection with the conveniences, etc. (For particulars see page 154). The matters in question were duly reported to the school authorities and subsequently remedied.

THE RAG FLOCK ACT, 1911.

In pursuance of this Act, 11 samples of Rag Flock have been purchased and submitted for analysis to the Public Analyst. One of these did not conform to the standard of cleanliness laid down by the Local Government Board in their Regulations under the Act (containing 46 parts of chlorine per 100,000 of flock).

The Analyst stated that this sample did not appear to be made from rags, and the Sanitary Committee considered that it did not therefore come within the provisions of the Rag Flock Act. No action was taken against the vendor, but the Committee directed that the attention of the Local Government Board be drawn to the difficulties experienced in dealing with certain cases in relation to the Act.

For particulars of work done under the *Food and Drugs Acts*, see pages 142-143A.

I have pleasure in acknowledging the loyal assistance rendered by the various members of the staff in the satisfactory manner in which they have carried out their many duties during another year of considerable stress and difficulty in consequence of the continuance of the War.

I am, Sir,
Your obedient Servant,
W. Hudspeth,
Inspector of Nuisances, Common Lodging Houses, etc.

Health Department,
Town Hall.